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# JUNIOR SCHOLASTIC

MARCH 22-27, 1943 VOL. 12 NO. 8

## WAR TRANSPORTATION ISSUE

Cover design by Katherine Churchill Tracy

APR 10 1943

THE SUN NEVER SETS ON THE FIGHTING JEEP

# U. S. MARINES CRASH SOLOMON ISLES

## IN JEEPS FROM WILLYS-OVERLAND

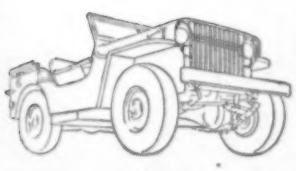
ON the shores of Guadalcanal and on the beach at Tulagi Bay, the fearless, hard-boiled U. S. Marines speeded their attack with modern Jeeps built by Willys-Overland.

In the hands of men like these, the tough fighting Jeep now adds new drive and mobility to a striking power already famous throughout the world. The jabbering Japs in the Solomons found this out when husky U. S. Marines charged up the beaches with their rugged Jeeps and cleared the enemy out of those strategic bases needed for our advance in the far Pacific.

The Jeep from Willys-Overland is outstanding among the various types of superior equipment being produced for our fighting forces and those of our allies by American manufacturing genius.

Willys-Overland civilian engineers assisted the U. S. Quartermaster Corps in designing and perfecting the Jeep adopted by the U. S. Army. The amazing, world-renowned GO-DEVIL engine that drives it with such power, speed and flexibility, is an exclusive Willys-Overland development. Willys-Overland Motors, Inc.

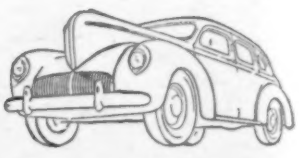
*Buy More U. S. Stamps and War Bonds*



U. S. ARMY JEEP

# WILLYS

## MOTOR CARS, TRUCKS and JEEPS



AMERICAR
*The People's Car*

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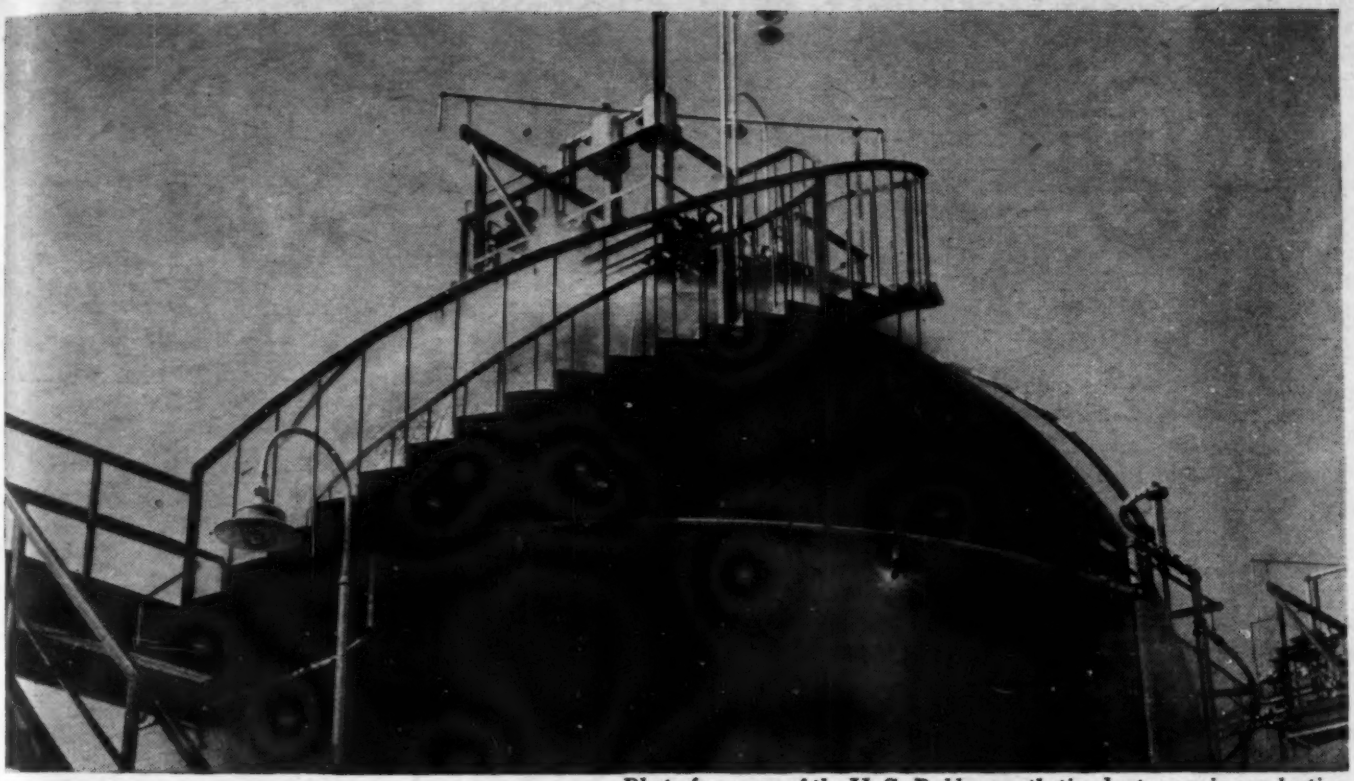

*Photo from one of the U. S. Rubber synthetic plants now in production*

# WHAT'S SYNTHETIC RUBBER?

The discovery of man-made substitutes for natural rubber is one of the great miracles of chemistry. Synthetic rubbers are not the development of any one man, nor of any one country. Over a period of seventy years, important contributions were made by chemists of Great Britain, France, Germany, Russia and the United States.

There are five basic types of synthetic rubbers:

**BUNA-S** (Beu-nah-S) **BUNA-N** (Beu-nah-N) **NEOPRENE** (Nee-o-preen)

**BUTYL** (Beu-til) **THIOKOL** (Th(eye)-o-kol)

Engineers and chemists of the United States Rubber Company have been working with synthetic rubbers since 1921. They have learned that no one synthetic should be used for all types of products. Each of the five basic types is capable of many variations. They have found that some synthetic rubbers are superior to natural rubber in many products. Some are equally as good. Others still have not been proved as good.

Synthetic rubbers, like natural rubber, are mixed with various other materials to give certain properties for certain purposes.

For instance, no tires of synthetic rubbers for the heavy work of the Army have been satisfactory without the use of a certain percentage of crude rubber.

Because almost all of our natural rubber is in the hands of our enemies, all the resources of America are devoted toward mass production of synthetic rubbers. Our laboratories and chemists are working night and day to fulfill their part.

After the war, all our products, including the rubber-soled shoes—Keds—which you've worn and liked so much, will be back. They will be made of whatever rubber gives you the best value, whether they are made of one of the five test-tube rubbers or of crude rubber, or a combination of both.

---

**NOTE TO INSTRUCTORS:** Information based on the results of vast experiments and practical applications of synthetic rubbers are incorporated in a new booklet, "The Five Commercial Types of Synthetic Rubber." It has been prepared for our own organization but is available to you, as a teacher, upon request.

REG. U. S. PAT. OFF.
**Keds**

## UNITED STATES RUBBER COMPANY

**1230 Sixth Avenue · Rockefeller Center · New York**

★ HEADLINE NEWS
WEEKLY REVIEW OF NATIONAL AND WORLD EVENTS

# Driving Ban Ended; Meat To Be Rationed

March 22 is a welcome day to motorists of the Eastern States. The Office of Price Administration announced that pleasure driving would be permitted after that date.

Pleasure driving has been banned this winter in the East, so that oil pipelines, tankers, and railroad tank-cars might be used to bring in fuel oil. This oil was needed for the heating of homes during the winter.

Even though pleasure driving is permitted again, motorists will not be able to take long trips this spring. The value of gasoline A coupons may be reduced from three gallons to two gallons.

### MORE FOODS RATIONED

Meats, cheese, butter, cooking fats and oils will be rationed beginning April 1. The red coupons of War Ration Book No. 2 will be used in purchasing these foods.

Each person will be allowed an average of 1¾ pounds of meat a week. Poultry was not included in the rationing order.

Cheese is a substitute for meat, and must be purchased with the same coupons. (In other words, the 1¾ pound average will include *both* meat and cheese, and not 1¾ pounds of each.)

# Great Air Assaults Blast German Cities

The "Battle *from* Britain" is on. From bases in Britain, United Nations airmen have been carrying out the greatest air assaults of the war. Large sections of German cities and German-occupied cities have been laid waste by our bombers.

The raids have gone on round-the-clock, day and night. Many submarine-building centers have been blasted, in order to cripple the U-boat packs which prowl the seas.

The Canadian air force began the smashing attack on Wilhelmshaven. This German seaport has many concrete "garages" for submarines. The Canadian planes turned the city into a sea of fire.

Then Americans in Flying Fortresses and Liberators pounded Wilhelmshaven again, and smashed at the U-boat base of Brest, France. From hidden airdromes all over the British Isles, squadrons of bombers flew toward Cologne, Germany. Four-ton block busters shattered this manufacturing city.

Berlin itself was the target of heavy raids. Bombers closed in on Berlin from every direction. Block busters and incendiary bombs rained down on Unter den Linden, the famous street which is the heart of Berlin.

Herblock in The Lynchburg News

**Nervous Nazis**

# Our Men Gain Ground In Central Tunisia

"Fix me up in hurry, Doc, I want to get back in there." With these words spoken to a doctor in a mobile operating room, a wounded Yank showed the spirit of our troops in Tunisia.

The Yanks and other United Nations men grimly pushed ahead in central Tunisia last week, regaining the ground they had lost to Rommel earlier. The Americans recaptured Sbeitla, an ancient town of Roman ruins and olive groves (see map on p. 3, March 8 *Jr. Schol*).

A French camel corps advanced across the Sahara desert. It drew near to the oasis of Gafsa, which was held by the Germans.

Meanwhile, the Germans attacked in northern Tunisia. The purpose of this attack was to cause us to withdraw troops from central Tunisia, and shift them to the northern front. Then Rommel might be able to halt his retreat.

International

**At left: Army tractor gets a lift to the battlefront. The tractor drives up special ramp into the body of a Douglas Skytrain transport.**

★See Vocabulary Drill on Page 21

# Red Army Pushes Northern Drive

The powerful Red Army offensive of Marshal Timoshenko last week rolled on against the northern half of the German line. The thaws had not yet begun in this region between Leningrad and Orel. The Russians used their knowledge of winter warfare to good advantage.

After a bitter fight, the Russians recaptured the strong "hedgehog" city of Rzhev. This city, only 130 miles from Moscow, had been in German hands for 18 months. Hitler once told his troops that the loss of Rzhev would be equal to the loss of half of Berlin.

You can locate Rzhev on the map on p. 3, March 15 *Jr. Schol.*

Along the southern half of the front, the Russian drives were slowed by the spring thaws, and by increasing German resistance.

### RETURN TO KHARKOV

Russian civilians were returning to their homes in Kharkov, and beginning to rebuild the shattered city. The great steel center and university city had suffered bitterly during 16 months of German occupation.

The Nazis took all the fine platinum and silver instruments from the well-equipped laboratories of Kharkov University, and sent them to Germany. Then they burned the 20,000 volumes of Kharkov's famous scientific libraries. Then they burned and blasted all the main buildings of the University.

The Nazis closed all the city's high schools. They opened Nazi schools, in the attempt to train Russian youth as Nazis—but without success.

Most of the babies in the city died, because of lack of food and medicine. The Germans gave out small amounts of wheat husks and horse meat to hospital patients. Other civilians wandered about the countryside, desperately searching for food.

When the Russians re-entered the city, they were welcomed by men who had been prisoners of the Nazis. These men, once hearty soldiers, were so weak from starvation that they could not walk without crutches.

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**Map of New Guinea battle area. Shaded area, Japanese-controlled region.**

# Map Study: New Guinea Victory

In the waters northeast of New Guinea, an air armada of United Nations planes wiped out a Japanese convoy in one of the greatest triumphs of the war.

The enemy convoy consisted of 12 transports, carrying 15,000 troops, and 10 warships guarding them. The convoy sailed from Rabaul, the great Japanese base on the island of New Britain (see map above).

The convoy headed for New Guinea, with the purpose of reinforcing the Japanese troops at Lae. These troops have been under attack by United Nations forces which advanced through the New Guinea jungles from Wau.

The Japanese convoy was sighted as it sneaked through tropical rainstorms, which kept our airmen grounded for a time. Then General MacArthur's pilots braved the rains to smash at the convoy. They raided the Japanese airdrome at Lae, from which planes might have risen to protect the convoy.

Every United Nations plane in New Guinea joined in the attack on the convoy. The enemy forces were scattered, and finally all the Japanese ships were sunk. Nearly all the Japanese troops went down with the ships.

The Japanese lost 82 planes in the battle, while we lost only one bomber and three fighters. It was the greatest victory ever achieved by air power over a naval force.

United Nations planes in the battle included Flying Fortress heavy bombers, Mitchell medium bombers, and Havoc attack bombers, as well as Lightning and Warhawk fighters. Some Australian Beaufighters also took part.

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# TRANSP

## By NORMAN CARLISLE

Author of *Your Career in Transportation*

"KEEP 'em rolling!" "Keep 'em flying." "Keep 'em sailing!" These are the battle cries of modern war on one of its mightiest fronts—transportation.

Across the dust-swept desert of North Africa a General Grant tank rolls into battle, its powerful armor-piercing guns blazing. It is a masterpiece of rolling destruction, a product of American industrial and military ingenuity. But the real story behind that tank is how it got there—the story of transportation.

It began in Minnesota, where freight cars rolled into the red pits of the Mesabi iron mines to receive the contents of the great mechanical shovels filled with iron ore. The ore went by rail to Duluth, and then down the Great Lakes by boat, then back to rails again to get to Pittsburgh where it was forged into steel—steel made possible by the flow of coal from the mines of Pennsylvania, and by the labor of men transported to work by buses. The finished steel plates came from the mill and were rushed to a tank factory by truck.

When the completed tank emerged, it went back to rail travel, to reach a coastal port. Then into the holds and onto the decks of grey freighters ready to start the hazardous journey to North Africa. Then off the ships to be transported by military railroad to a point near the scene of operations.

Multiply one tank by tens of thousands. Consider the ten tons of equipment needed for each soldier in the field. Add trucks, guns, repair parts, food supplies. Add millions of soldiers. You begin to get some faint picture of the vast problems involved in transporting a global war.

No matter how far-flung its ultimate destination, transportation of war goods begins at home. A breakdown of transportation in our own country presents as much of a menace as a breakdown caused by enemy action in the battle zone. Transportation has been called the "conveyor belt" of the war effort.

Let's look at the organizations which fit the pieces together. The secret of our success in meeting the vast challenge of moving the goods for this war has been the fact that we have set up agencies, private and government, to perform the big jobs of coordination.

### The Job of the ODT

When bombs fell on Pearl Harbor, the Office of Emergency Management rushed into action and set up the Office of Defense Transportation, which was soon familiarly known as the ODT. Joseph B. Eastman, former Federal Coordinator of Transportation, who was appointed to head this organization, found himself faced with a tremendous task. The mere list of the functions of the ODT shows how important it is. Its duties are to:

1. Coordinate transportation policies and activities of government and private agencies.
2. Prepare estimates of the loads to be carried and determine whether sufficient facilities are available.
3. Coordinate and direct domestic traffic to prevent congestion, and insure the orderly movement of men and materials.
4. Cooperate with the U. S. Maritime Commission and other agencies to coordinate domestic traffic movements with ocean shipping to avoid congestion in ports.
5. Carry out certain special functions entrusted to the President under the Interstate Commerce Act.
6. Survey storage and warehouse requirements at points of transfer and in terminal areas.
7. Represent the defense interests of the Government in negotiating rates with the transportation companies.
8. Advise upon existing or recommended

# SPORTING a global war

## *Biggest Moving Job in History Coordinated by the Office Of Defense Transportation and Other War Agencies*

emergency legislation affecting domestic transportation.

Later the ODT was charged with the further task of including in the scope of its responsibility all rubber-borne transportation facilities.

### Merchant Marine Goes to War

When the United States actually went to war, the U. S. Maritime Commission was already at work on an extensive shipbuilding program begun in 1938. Concentrating on speeding up shipbuilding, the Maritime Commission turned its other duties over to a new organization, the War Shipping Administration, headed by Admiral Emory S. Land, who was also chairman of the Commission.

Men had to be trained to man the ships, so the WSA started its training program, establishing training centers such as that at Sheepshead Bay, Long Island, where 10,000 men at a time are trained in modern seamanship. With the WSA works the Combined Shipping Adjustment Board, which is made up of both U. S. and British shipping experts, who decide the best ways to use the ships of the United Nations.

Ships take over where other transportation systems leave off. What about the railroads? In World War I the terrific burden imposed on the railroads caused a breakdown as a result of faulty coordination. Freight cars that should have been moving piled up in ports. The railroads were determined that this time there would be no such log jam. The long-range plans of the Association of American Railroads came into operation smoothly when the war crisis came.

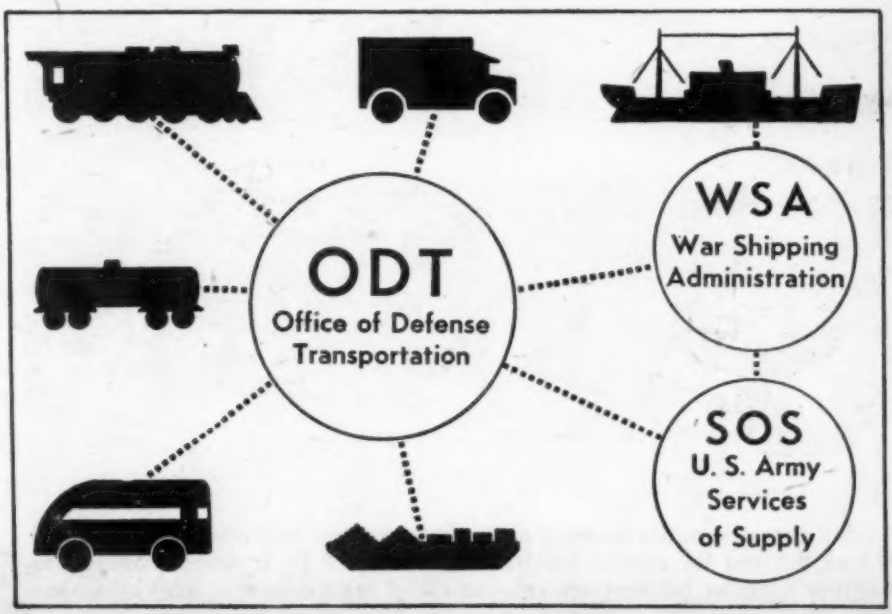
### Services of Supply

Now look at the Army. SOS does not mean a distress signal to Army men. It means Services of Supply, a huge organization headed by Lieutenant General Brehon H. Somervell. In March, 1942, SOS took over the tremendous task of supplying the growing U. S. Army with all the material it needed to fight a war on many fronts. General Somervell knew what the real problem would be. Recently, after attending the Casablanca Conference, he made a 34,000-mile trip to the war zones in Africa, the Near East, and India. His comment was that he was "surer than ever that this is now a war of transportation. First it was a battle of production, now it is a battle of *distribution.*"

To get that distribution, the Army has set up its Transportation Corps. The TC is literally transporting a global war, for it ties together truck lines, railroads, ships and any form of transport, other than air, necessary to get the goods to the fighting fronts. In performing these varied tasks it cooperates with the ODT and the WSA.

Transport has grown wings. To make those wings carry the right goods to the right places is the task of the Air Transport Command, the branch of the Army charged with coordinating all air transport. Although it, like the other organizations set up for war transportation, is still a youngster, it has chalked up many miracles in the brief period of its robust existence. With the help of the U. S. airlines it has crisscrossed the world with established airways, over jungles, deserts, the Arctic, the seven seas, and all the continents. Staffed by able airline executives and experts from the Army Air Forces, it has paved the way for the air transport services of tomorrow.

Thus the major pieces of the wartime transportation puzzle fit together. Cooperation has been the key to meeting the wartime transportation challenge. The same kind of cooperation will help to create new miracles of transportation after the global war becomes the global peace.



# This Is a MOTORIZED WAR

## *Fast and flexible, our motor truck system forms a vital link in war transport*

"BUT the convoy will be gone before the goods can get there!" It looked bad for the shipment of life rafts that was to go to the South Pacific. At the moment, the rafts were still rolling from the assembly line in a New England factory. Could they reach the West Coast before the convoy sailed?

A transcontinental trucking company promised that they could. Then began an exciting race against time. The life rafts were loaded directly from the assembly line into huge trucks, lined up in a row. As soon as one truck was filled, another took its place.

Relief trucks were waiting at Chicago and Denver, and new drivers took over at those cities. There was a raging storm extending from Chicago all the way to the Rocky Mountains. There was a bridge washout which forced the trucks to make a 200-mile detour. Nevertheless the life rafts reached San Francisco in time to be hoisted into the steamer, 36 hours ahead of sailing time.

That is an example of what trucks can do for the war effort on long hauls. They are equally valuable for short-distance transportation. For example, an aircraft factory faced the problem of moving material swiftly between Plant No. 1 and Plant No. 2, which were 19 miles apart.

Trucks were the answer. Trucks with trailers, hauling 8,000 pounds each, shuttle back and forth continuously.

Whatever the demands, trucks have proved their worth for wartime transportation. They go into many communities not reached by railroads. They thread their way right into the factories, rolling between assembly lines. They haul guns, parts of ships, airplane parts, steel, coal, food.

### THEY GO EVERYWHERE

The importance of trucks in the transportation of food alone is tremendous. More than 77 billion pounds of milk and cream will be hauled 1,775,000 miles this year. Trucks will move 83 million hogs, 23 million sheep and lambs, 100 million cases of eggs.

Last year there were about 5 million trucks in the United States. About 700,000 of these were trucks which carry freight for hire, as the railroads do. If you were in a reviewing stand which these trucks were passing at the rate of one every second, you would watch them go by night and day for a week. That's a lot of trucks, and it takes 1,250,000 men and women to "keep 'em rolling."

It has been well said that "this is a motorized war." Besides these trucks on the home front, tens of thousands of trucks and motor vehicles are serving the armed forces. The variety of these military vehicles is almost unbelievable. They include tiny rugged jeeps bouncing over terrain★ that would shake any other car to pieces; great vans to carry airplane parts, and whole portable airports; aircraft maintenance shops on wheels; and troop-carrying trucks for the swift war of movement.

The Army not only uses its own huge fleets of trucks, but also makes frequent use of the commercial trucking lines. In one case, a group of soldiers were going 1,300 miles by train, from Oklahoma City to Blythe, Calif. Their equipment had to be there when the soldiers arrived, but it would have taken a week to ship it by train. A truck line undertook the job, and delivered the equipment in 41 hours.

### PRESIDENT'S MESSAGE

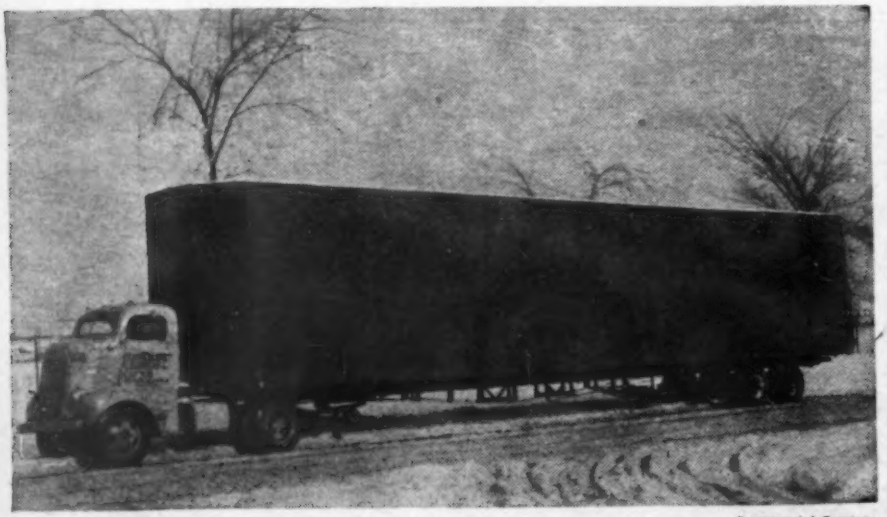
America's highway transport system is now facing grave problems, in the shortages of rubber and other materials. President Roosevelt sent this letter to the "Owners and Drivers of America's Motor Trucks":

"The five million motor trucks in this country are a vital asset to the war production effort. They represent a powerful arm of transport we did not have during the last war. They can be of tremendous aid in helping speed the flow of farm, military, and industrial products so necessary to victory.

"Unfortunately these motor trucks are now an almost irreplaceable★ commodity. Many manufacturers must devote their entire efforts to building military vehicles only. Others must turn from making automotive materials to producing guns, shells, and other equipment needed by our armed forces. Rubber has become precious.

"These things mean that it has become the patriotic duty of every truck operator in America to help in every possible way to make his trucks and tires last longer."

How well the truckers have succeeded is shown by records like that of one truck on the West Coast. It has traveled a million and a quarter miles, and is still in good shape. Its tires have seen a million miles of service. They have been recapped many times but there is still wear left in them.



Commercial Carriers

**Trailer above is made entirely of wood and other non-essential materials. It was devised for special job hauling bodies of U. S. Army ambulances. Another monster trailer-truck can haul half the parts of a heavy bomber.**

# LOGISTICS WILL WIN THE WAR

GENERAL NATHAN BEDFORD FORREST, Union cavalry commander during the American Civil War, said that the most important rule of warfare was: "Get there fustest with the mostest men"

The problem of getting there "fustest" with the "mostest" is the problem of logistics. This word comes from the French *loger*, meaning to lodge. The dictionary defines logistics as "that branch of the military art which includes the transport, quartering, and supply of troops."

This war, more than any other in history, is a war of logistics. The problems of the "transport, quartering, and supply of troops" are among the most important to be solved for Victory.

## AXIS "INTERIOR LINES"

Germany and Japan have an advantage in the geography of this war. Each of these Axis nations crouches like a spider at the center of a great web. To attack or defend any point on the rim of the web, they have only to shuttle their men and munitions across it (see Global War Map on pages 10 and 11).

The United Nations, on the other hand, are on the outside of the webs. To get from one point to another, they must go all the way around the outside edge. In military terms, the Axis nations are fighting on "interior lines," and the United Nations are fighting on "exterior lines."

Control of the seas is essential to the United Nations. From factories in the United States and Britain, supplies must be sent across thousands of miles of blue water to the fighting fronts. This problem is discussed in "Lifelines of the Seven Seas," on pages 12 and 13.

The transportation system *within* each of the United Nations is just as important as the sea lanes *between* the United Nations. It would do no good to produce ships, planes, and guns in U. S. factories, if they could not be transported to seaports where ships are waiting for them. It would do no good to carry war supplies across the oceans to Russia and China, if these nations could not transport them to the battlefields.

The wartime transportation system within the **United States** is discussed in several articles of this issue. We are cooperating with our neighbors, **Canada** and **Mexico**, to build up their transportation systems. The work is directed by the U. S.-Canadian Joint Defense Commission and the U. S.-Mexican Joint Defense Commission.

The great cooperative achievement of the United States and Canada is the Alcan Highway. This super truck highway runs for 1,600 miles, from Dawson Creek in northern Canada to Fairbanks, Alaska. It is the only land road over which supplies can move from the United States to our Alaskan outposts.

At the other end of the line, we are helping the Mexicans to build up their railroad system. The Tehuantepec railroad, from the Gulf of Mexico to the Pacific, is being reconstructed, and other railroads are being improved. This will speed the flow of Mexican raw materials to U. S. factories.

## BRITAIN, RUSSIA, CHINA

What about the transportation problems of our allies on other continents?

**Britain** has had some tough transport knots to untie. Besides the ordinary strain of wartime, the British have had to fight the German air blitz. Nazi bombs have destroyed roads, smashed trucks and buses, and killed many drivers. But through the blitz and through the blackout, British trucks have rumbled on with their precious cargoes.

The railroads, too, have carried on, and Britain's railwaymen have earned the title of "soldiers of the home front." Trains have been machine-gunned, tunnels blocked, and railroad lines knocked out for a few hours or days. But the steady stream of war traffic has never been halted.

At the other side of Europe are the **Russian** transportation lines. The Russians have worked wonders in moving goods across the rail, road, river, and canal systems of their vast country.

It is a very difficult job to get supplies from the Persian Gulf ports into Russia (see Feb. 8 *Jr. Schol.*, pages 6 and 7). The Trans-Iranian Railway is used for this purpose. It runs for 870 miles over mountains that are steeper than the Rockies. Its single-track line goes through 314 tunnels, crosses 4,102 bridges, and climbs a mountain range 9,500 feet high.

Of all the United Nations, **China has** the worst transportation problems. By 1938, the Japanese had captured all of China's seacoast cities, which were her "front doors" for trading with the outside world. But the Chinese could still use these three "back doors":

1. The road and railroad from French Indo-China.
2. The Burma Road.
3. The long overland route from Russia.

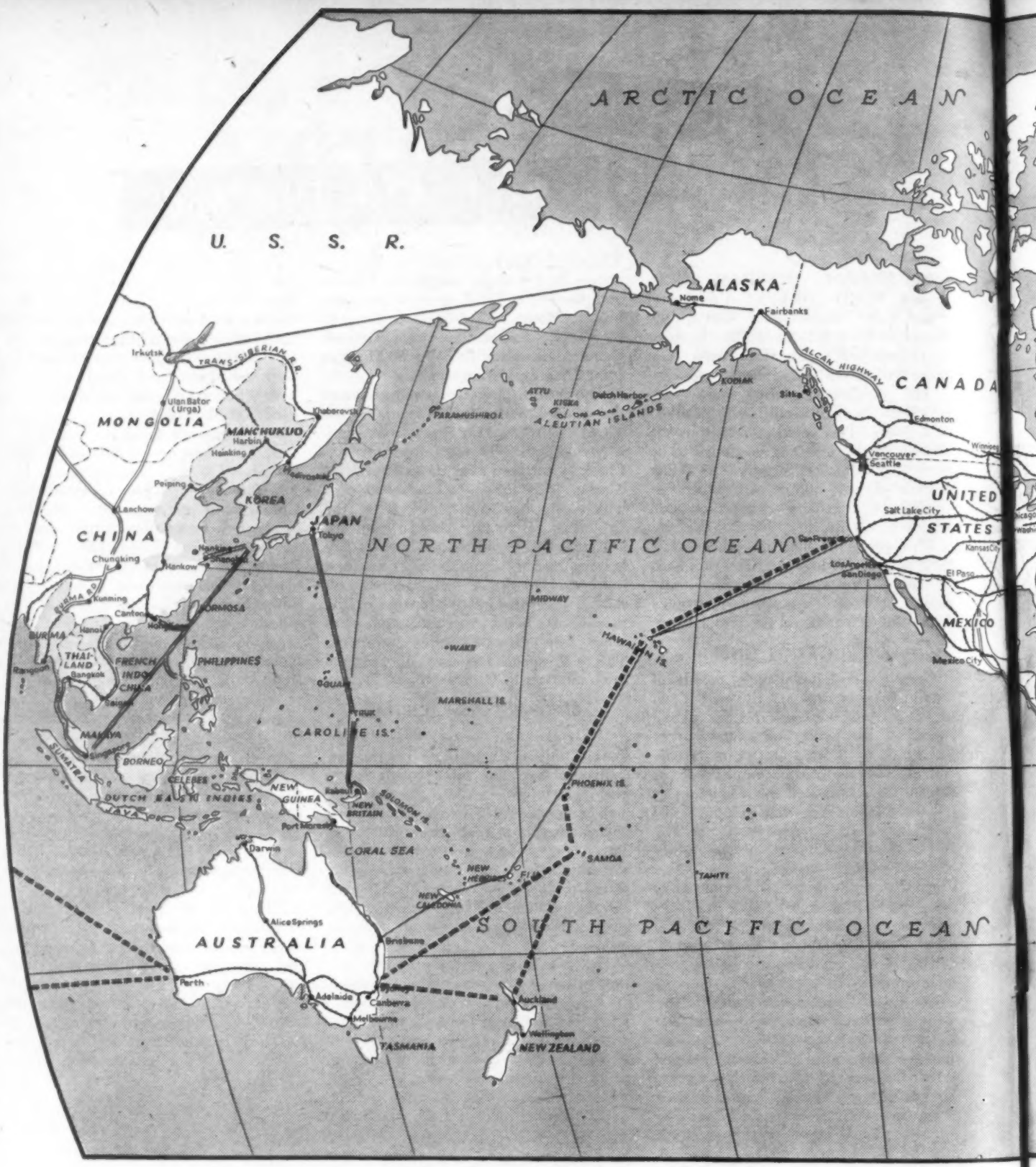
Then the Japanese occupied Indo-China, thus closing one back door. Next, they conquered Burma, and the second door was closed. The road from Russia remains open, but the Russians cannot spare much war material these days. They need it to fight the Germans.

China's chief supply-line from the outside world today is the air route from India. Madame Chiang Kai-shek recently pointed out that only a small amount of supplies can reach China by this route.

Even when supplies from the U. S. and Britain do reach China, there is still the problem of getting them to the front where they are needed. The Japanese have seized most of China's railroads, and the few which are left are in poor condition. There are not enough locomotives and cars.

The Chinese have built hundreds of miles of highways. But the trucks which use them must have gasoline, oil, and spare parts, and there is a shortage of these vital goods.

And so the Chinese are forced to rely mainly on animals and human beings for land transportation. Sampans★ and sailboats carry goods along waterways.




# GLOBAL MAP for GLOBAL

THIS map shows the Axis' much shorter "interior lines" of transportation as opposed to the far-flung, global routes of the United Nations.

Compare: the United Nations' long sea and air routes to North Africa with the Nazis' shorter rail routes from Berlin to the Mediterranean area; the United Nations' submarine- and bomber-menaced sea route to Murmansk and Archangel with the Nazis' safer Baltic and Berlin-Warsaw-Smolensk rail route to the Russian front.

Also note the long sea-rail-road journey required to bring aid to Russia via Iran and the Caspian Sea.

Airlines from the United States to North Africa and the Middle East via Natal, Freetown, Lagos, Khartoum; and via the Azores, Casablanca, Algiers, and Cairo, help the United Nations to overcome the

Map for Scholastic by Bunji Tagawa

# WAR TRANSPORTATION

Axis advantage on those fronts.

Compare: the United Nations aid-to-China routes by rail, road and air from Russia and India to Lanchow and Chungking, with Japan's short sea route to Shanghai and Canton in Occupied China.

Compare: the sea and air routes from the United States to Australia, with Japan's sea routes to New Guinea and her bases in the Caroline Islands.

## KEY TO MAP

- United Nations shipping routes
- United Nations air routes
- Axis shipping routes
- Axis powers and occupied areas
- railroads
- motor highways

# Life Lines of

U. S. Maritime Commission

**Cargo for fighting fronts 'round the world is stowed snug by stevedores who work by sunlight and floodlight.**

THE attack began at dawn. It came screaming from the skies as torpedo bombers hurtled out of the low overcast.

The grey convoy, spread from horizon to horizon on the roiled black waters of the North Atlantic, seemed to huddle and brace itself for the coming shock. The escort ships churned the waters, darting like angry hens to protect their brood from danger. Above the convoy little clouds of smoke began to appear in clusters as the cough of the ack-ack guns filled the air.

A freighter singled out for destruction moved sluggishly as two torpedo bombers sped down toward it. They came in close to the ship and the ugly torpedoes dropped forward. There was a heavy explosion. The freighter stood motionless for a minute, then seemed to disappear as her cargo of munitions went skyward. A few surviving seamen bobbed on the debris-strewn surface.

A destroyer, guns blazing, moved in swiftly, and one of the torpedo bombers suddenly lost a wing.

Meanwhile menace had appeared from another source. In the very midst of the convoy, among the helpless merchant vessels, a black periscope appeared, and more torpedoes slashed through the water.

The attack began like that, off Spitzbergen. It went on all that day, from time to time, as the raiders from sea and sky came back. Next morning it began again. And the next. It went on for a week. Finally the battered convoy, minus several of its ships, approached Murmansk. Seamen aboard the surviving ships shrugged their shoulders and were glad to get ashore. They had been through other trips like that.

Thus through the fury of attacks from beneath the sea and from the air move the grey convoys of ships laden with the goods of war.

### The Bridge of Ships

Look at the distance for a moment. Australia is 10,000 miles away, or over 40 days of travel at 10 knots an hour. Supplies to Russia's northern ports must travel over 4,000 miles. The greater the distances, the more ships are needed, and the more chances there are for a ship to be sunk.

Ships—thousands of ships! That was, and is, the crying need of this war. The U. S. Maritime Commission with its great ship-building program, has been filling part of the need. And in the earlier months of the war the American steamship companies patriotically threw their full resources into the great struggle of sea transportation. Gleaming white luxury liners which had once carried passengers to and from South American ports were disguised with drab grey paint, and ploughed the sea lanes to far northern ports. Steamship lines gave up their identity for the duration, pooled their docking and shipping facilities.

But no matter how you add it up, we had all too few ships for the prodigious job. There was a United Nation's pool of about 30 million gross tons to draw from—not much more than the total available in 1917, when transportation needs were far less. Hungry packs of U-boats roved the sea lanes, meting out destruction with vastly more efficiency than they achieved in World War I.

There were two answers to the problem of sea transport. "Build more ships!" "Use convoys!"

The first answer has been a bold one, carried out in such shipyards as those of Henry J. Kaiser and many others. Ships that took 240 days to make began to go down the ways in 55 days. Such figures brought scornful doubt from Axis propagandists. Yet 55 days soon came to look like a long time, for last September President Roosevelt witnessed the launching of a ship only a little more than four days after work was begun on it in the shipway.

The shipbuilders had learned their lessons from the automobile manufacturers. Prefabrication and assembly line technique were applied by building whole fronts, complete deckhouses, and other large parts,

**Convoys of Merchant Ships Face Peril from Sea and Sky to Deliver Goods for Global War**

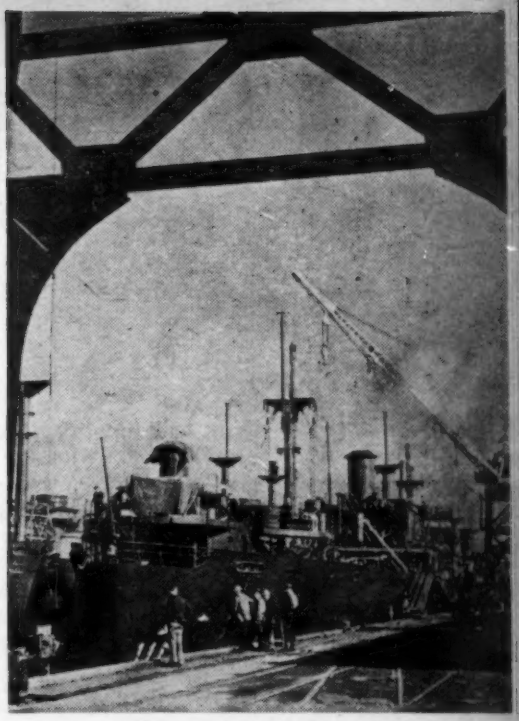
# the Seven Seas

and assembling them with giant cranes, instead of putting them in place piece by piece. Welding eliminated millions of rivets.

The shipbuilding achievement of American yards, sponsored by the U. S. Maritime Commission, is unparalleled in history. Starting from scratch in the period after World War I, when we let our merchant marine badly decline, the USMC began a new period of building in 1938, which was tremendously intensified after passage of the Lend-Lease Act. In 1942, 746 ocean-going freighters of over 1000 tons were launched—better than two a day. In 1943, the Commission estimates that our shipyards will turn out from 1,800 to 2,000 ships with a gross tonnage of nearly 30,000,000. This—just one year's "crop" of ships—is as much as the entire merchant fleets of all the United Nations combined at the start of the war!

But it is not enough to *build* ships. Somehow they must be protected after they venture into the ocean. In World War I the convoy system was worked out. It meant simply having ships travel in large groups of 50 or more. Protecting them are many fighting ships—chiefly destroyers—ready to beat off attack.

There are plenty of things wrong with the convoy system. For one thing, lack of speed. If your slowest ship travels at 8 knots, that is the speed of the whole convoy, for no ship dare stray from the group. Time is lost in grouping convoys, and getting ships together from several ports. Then at the destination end, time may be lost in unloading because so many ships arrive at the same time. Ships which in peacetime would make a round trip from the United States to some foreign port in a month may require as much as three months in a convoy.



U. S. Maritime Commission

**"Build more ships!" Shipyards answered the cry, used assembly line methods, turned out ships like cars.**

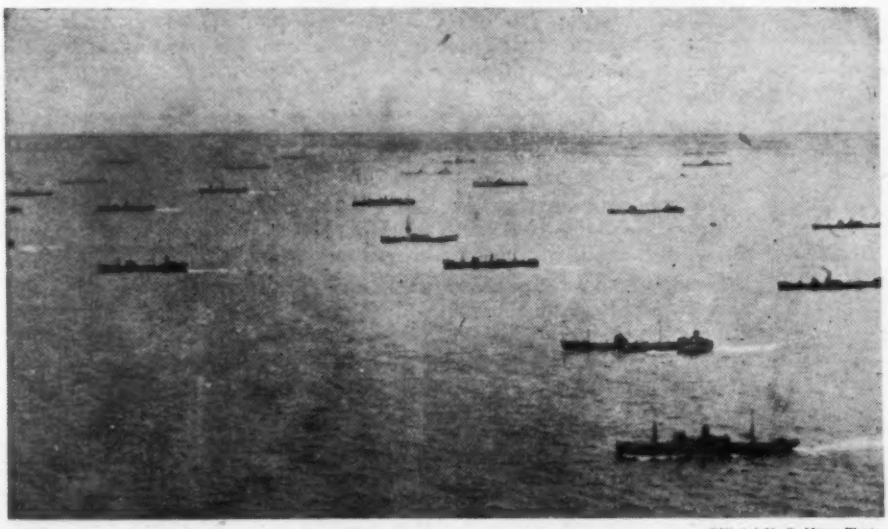
The Germans have developed new techniques of under-sea warfare which are hard to overcome. Super-powerful submarines with tremendous range travel in packs and "gang up" on their prey.

There is another answer—build faster ships that can outrun submarines.

### What It Takes to Fight Abroad

If carrying the goods to England and Russia is a big job in itself, carrying the equipment for our fighting forces overseas is even bigger. The American Expeditionary Force to North Africa was carred in a mighty armada of more than 350 war ships and 500 troop and supply ships. It takes ten tons of materials to put each man in the fighting forces at the start, and a ton and a half a month required to keep him in the field.

In the shipment to North Africa were more than 700,000 different items of equipment and supply. There were 390 different articles of clothing and individual equipment; 10,000 different pieces of equipment for the Signal Corps; 68,000 different items of medical supplies; 100,000 Engineering Corps items, including such big ones as full-sized locomotives, bridges, and storage tanks. Ordnance alone required more than a quarter of a million different items.



Official U. S. Navy Photo

**A bridge of ships, grey-painted, ever-alert, stretches from horizon to horizon, carrying the tools of war to the world's far-flung battlefronts.**

# SKY TRANSPORT GIRDLES the GLOBE

"YOU'RE going to Africa. Can you leave in two hours?"

The tank expert in a Middle Western factory wasn't surprised when he heard these words. He had seen many tank parts rushed out of the factory, into waiting planes of the U. S. Army's Air Transport Command, to be carried to the far battlefront in North Africa.

Within a few hours, he was in a plane flying over the South Atlantic. A few more hours and he was crouching down beside battle-scarred American tanks in Libya. It took only half an hour for him to find what was wrong.

"We'll make the new parts that'll stop this," he announced. An hour later he was again in the air, and in a few days the tank factory was making the new parts.

That's the Air Transport Command in action.

The ATC was organized on July 1, 1942. It has many duties. The men of the ATC deliver warplanes to world-wide fighting fronts. They transport personnel, cargo, and mail for the War Department. They operate all Army air routes beyond our borders.

Part of the drama of air transport is the laying out of new routes. This job is as tough as they come. For instance, take the chain of airports that were slashed out of the African jungles. First, the new route was charted on a map. Then an airline official and an Army major flew over the route. They surveyed the work to be done, and estimated the amount of equipment that would be needed.

Twelve hundred picked men were recruited in the United States, to build the airports. They were given shots for typhoid, yellow fever, tetanus, and cholera. Then they were rushed to Africa.

They found themselves in the midst of a jungle filled with hidden menace. Malaria struck down one-third of them. Several measures were taken to fight this disease. Prefabricated houses with air-conditioning equipment were flown in. Oil was poured on the swamps, sewers were dug, and the men wore night clothing with long legs and sleeves. The malaria rate dropped to only one out of a hundred men.

There were other discomforts and difficulties. Scorpions, snakes, flies, and mosquitoes lived in the steaming, fetid* jungles.

Many of the materials for building the airports had to be carried on the heads of native bearers, who threaded their way through narrow jungle trails. Somehow, the Diesel engines, the scrapers, the drums of oil were delivered to the spots picked for the landing fields. It was a struggle, but the task was completed, and the United Nations had a vital airline across Africa.

The U. S. Navy has its own Naval Air Transport Command—a huge service that covers 40,000 miles of routes to the farthest corners of the world.

The commander of a battle-damaged submarine sent out a call for repair parts. Ten thousand miles away, mechanics worked on the material for 30 straight hours. A police escort rushed the shipment to an airport. Three days later, an NATC plane delivered the parts. It would have taken a month for the parts to reach the submarine by ship.

NATC pilots operate on a tight time schedule, flying every day over arid deserts, arctic wastes, and lonely seas. Squadron VR-1 has its base at Norfolk, Va.; VR-2 at Alameda, Calif.; VR-3 at Kansas City, Mo.

## AIRLINES GO TO WAR

One of the biggest transportation stories of the war is the work of the Contract Air Cargo Division of the Army air forces. This service is composed of the various civil airlines of the United States.

Every CAGD plane flies ten hours a day, seven days a week, carrying cargo of 3,500 pounds or more. In a single week, millions of pounds of supplies are transported by this service.

In Alaska, a hospital burned to the ground. There had to be a new one—and fast. The problem went to CAGD, and all the airlines worked together to solve it. Within 48 hours, a complete 35-bed hospital, with all equipment and medicines, had been delivered in Alaska.

In spite of the many military duties of the airlines, they have managed to keep up their regular service during this war, and even to increase it. They serve thousands of passengers—mostly people who are on business connected with the war effort.

Pan American Airways

**"Somewhere in Africa," a native watches the clipper come over. Plane is a Boeing B-314.**

ISSUE OF MARCH 22 1943

TEACHER'S EDITION OF JUNIOR SCHOLASTIC

CLASSROOM AND MAGAZINE WORKING TOGETHER

# TRANSPORTATION VITAL DURING WAR AND AFTER

This special issue of *Junior Scholastic* deals with the problems of transporting a Global War. This war is being fought on a scale not dreamed of in former times, and the transportation aspect is of all-importance in the war plans. It is our belief that this unit presentation of the subject will do much to give your pupils a world view of the war—to integrate their knowledge of the various battle regions.

Then too, the future peace-time world is being formed in the very course of the war, as transportation conquers distance and overcomes natural barriers between nations. Consider the speed and comparative ease of President Roosevelt's journey to Casablanca. Consider the air ferry routes which regularly cross the "impassable" mountains between India and China. These facts are of the greatest significance for international relations after the war.

### PROJECTS FOR THE CLASS

The subject of Transportation lends itself to class or individual projects. Here are a few suggestions from which you might be able to develop projects:

**1. Map showing world transport routes.**

The class could make a large relief map of the world, by using a salt, flour, and water mixture which can be painted when dry. Routes can be plotted by means of taut strings pinned to the map. To represent various kinds of transportation, use strings of different colors (for example, blue for planes, red for railroads, white for ships, etc.) Or the planes, ships, trains, trucks, can be indicated by toys or cardboard models.

Important roads such as the Alcan Highway, the Pan-American Highway, and the Burma Road should be included. The class may wish to add large production centers, national capitals, battlefronts.

**2. Transportation map of your community.**

This map would show the railroads, airports, principal bus lines, and highways of your community. It would bring the subject home to pupils, and would be particularly valuable if the community is a center of war-goods manufacturing or shipping.

**3. An exhibit of models.**

This would include models, constructed by the pupils, of vehicles of transportation: transport planes and gliders, famous trains and ships.

**4. Scrapbooks of individual pupils.**

These scrapbooks on transporting a Global War could contain news clippings, magazine articles and pictures, advertisements, maps and diagrams.

**5. Group research.**

Divide the class into groups, and assign each group to prepare a report or notebook on a topic such as one of these:

a. History of transportation; great inventions.

b. How advances in transportation have changed men's lives.

c. National and international law governing use of vehicles.

d. The U. S. Maritime Commission.

## TRANSPORTING A GLOBAL WAR—pp. 6, 7

***Discussion Questions***

1. Suppose a box of chewing gum, made from Mexican chicle in a U. S. factory, is sent to a soldier in Tunisia. Name the methods of transportation that might be used from the Mexican chicle tree to the Tunisian front.

2. Why is transportation called the "conveyor belt" of the war effort?

***Fact Questions***

1. What organization does Joseph B. Eastman head? (Its initials are ODT).

2. What does SOS mean to Army men?

3. What is the difference in duties between the Transportation Corps and the Air Transport Command?

## THIS IS A MOTORIZED WAR—p. 8

Trucks are an indispensable means of auxiliary transportation in this war. You might discuss with your class how the curtailing of automobile driving helps provide rubber for the continued maintenance of trucks.

***Discussion Questions***

1. What advantages do trucks have over railroads in carrying goods? Can you name advantages that railroads have over trucks?

2. Do you know for what purpose the railroad companies themselves use trucks?

3. Name three kinds of motorized vehicles that are used by the Army.

4. What other material besides metal are truck bodies now made of?

***Fact Question***

1. Why are trucks almost irreplaceable during the war?

## LOGISTICS WILL WIN THE WAR—p. 9
## WAR TRANSPORTATION MAP—pp. 10, 11

All continents, all climates, must now be reached by our transport facilities, to send munitions, food, clothing, and medicine to our fighting men and those of our allies. Your class will be interested in this list of places where U. S. troops are stationed:

*Caribbean Region*: Panama Canal Zone, the Bahamas, Cuba, Jamaica, Antigua, St. Lucia, Trinidad, Curacao,

[Continued on next page]

## Theme Articles—Revised Schedule

To allow for this special Transportation Issue, *Junior Scholastic's* schedule of Theme Articles has been revised. Here is the new schedule for the remaining issues of the semester:

March 29—**Australia, New Guinea, Solomons.**

April 5—**The Pacific and Its Islands.**

April 12—**Our Southernmost Neighbors.** Chile and Argentina.

April 19—**Smaller South American Neighbors.** Uruguay, Paraguay, Bolivia, Peru.

SKIP AN ISSUE—SPRING VACATION.

May 3—**Brazil, Our Latin Ally.**

May 10—**Equator Countries.** Ecuador, Colombia, Venezuela, the Guianas.

May 17—**Mexico, Central America, the Caribbean.**

May 24—**North of the Border.** Canada and Alaska.

British Guiana, Netherlands Guiana, Guatemala, Bermuda.

*North Atlantic*: Newfoundland, Greenland, Iceland, Northern Ireland, Britain.

*Africa*: Equatorial Africa, French North Africa, Eritrea, Egypt.

*Middle East*: Iraq and Iran.

*Far East*: India and China.

*Southwest Pacific*: Fiji Islands, New Hebrides, New Caledonia, New Zealand, Australia, New Guinea, Solomons, Samoa.

*Pacific*: Hawaii and Midway.

*North Pacific*: Aleutians and Alaska.

The class should locate such of these places as are shown on the map, and trace the shipping routes from the United States to these outposts.

Each of the regions requires a certain type of clothing and equipment. Ask pupils to discuss the types of clothing used in contrasting regions: for example, in Iceland and in Tunisia.

Excellent material on these questions is contained in a booklet titled *America's Battlefronts: Where Our Fighting Forces Are*, by Frederick Gruin (Foreign Policy Association; 25 cents).

### Discussion Questions

1. How has Germany's geographical position been an advantage in her invasions of European nations?
2. Can you give an example of a military setback caused by shortage of supplies?

### Fact Questions

1. What is the meaning of the French word *loger*, from which "logistics" comes?
2. In what nation is the Tehuantepec railroad?
3. Name a route by which we send supplies to Russia (get one out of two).
4. By what route do we now send supplies to India?

## LIFELINES OF THE SEVEN SEAS—pp. 12, 13

### Discussion Questions

1. What do you think could be done to improve the convoy system?
2. Why are merchant seamen sometimes called "unsung heroes"?

### Fact Questions

1. What production method did the shipbuilders learn from the automobile manufacturers?
2. How do we defend our merchant ships against submarines?
3. What is the disadvantage of the convoy system?
4. What Government agency has charge of the shipbuilding program?
5. Do German submarines usually travel alone, or in groups?

## SKY TRANSPORT GIRDLES THE GLOBE—p. 14

### Discussion Questions

1. On what other continent besides Africa have U. S. engineers helped to build airports in the jungles?
2. Would you prefer to serve in the Air Transport Command of the Army, or in the Naval Air Transport Command?
3. What dangers were encountered by the men who built airports in African jungles?
4. Why do we need an airline across Africa?

### Fact Questions

1. What does ATC stand for?
2. What is the NATC?

## RAILROADS ACCEPT A CHALLENGE—p. 17

### Discussion Questions

1. What is the reason for the oil shortage in Eastern states?
2. Why have the railroads done their job more successfully during this war than during World War I?

### Fact Questions

1. What is the duty of the Military Transport Service?
2. What is the special job of the Tank Car Section?
3. Name a product carried by hopper cars.

## BUILDERS OF AMERICA—p. 20

### Discussion Question

1. What effect did the transcontinental railroad have upon American national unity? What effect will global air travel have upon world-wide unity?

### Fact Questions

1. Who called General Dodge to Washington, to discuss the building of a transcontinental railroad?
2. Of what railroad did Dodge become Chief Engineer in 1866?
3. What was a great danger in railroad building in the West?
4. What took place at Promontory Point, Utah, in 1869?

## INLAND WATERWAYS—p. 22

### Discussion Questions

1. What are the advantages of water transportation in time of war?
2. In what way does the steel industry depend upon water transportation?

### Fact Questions

1. What is the greatest artery of inland transportation in the United States?
2. Name one material that is often carried by barges.

## OXCART TO STRATOSPHERE—p. 24

### Discussion Questions

1. What was the greatest change in the history of transportation—the discovery of the wheel, highways, canals, railroads, the automobile, the airplane? Give reasons for your answer.
2. How has the improvement of transportation raised our American standard of living?
3. Why was the coming of the railroads so eagerly accepted?

### Fact Questions

1. What canal was built to connect the Great Lakes and the Hudson River?
2. What kinds of ships were the *Savannah* and the *Great Eastern*?
3. What was the *Tom Thumb*—a ship, locomotive, or automobile?
4. What material were railroad tracks sometimes made of in early days?

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### Answers to Victory Quiz, Page 21

HEADLINE NEWS: New Guinea, Rabaul, Rzhev, Kharkov, Wilhelmshaven, Berlin.

TRANSPORTING A GLOBAL WAR: D, E, C, A, B.

LOGISTICS: Canada (or Alaska), Mexico, Britain, Russia, China.

FROM OXCART TO STRATOSPHERE: National Highway, *Savannah*, Peter Cooper, Erie Canal.

LIFELINES OF THE SEVEN SEAS: b, b, c.

# Teaching Aids on Transportation

## BOOKS AND PAMPHLETS

**For Junior High School Pupils:**

Keir, M. *The March of Commerce*, (Pageant of America, Vol. IV), Yale University Press, New Haven, Conn.

Miller, J. *Fares, Please! From Horse Cars to Stream Liners*, D. Appleton Co., New York, 1941.

Muller, C. *How They Carried the Goods*, Junior Literary Guild, New York, 1932.

Reck, F. *The Romance of American Transportation*, Crowell, New York, 1933.

U. S. Maritime Commission. *America Builds Ships*, U. S. Maritime Comm., Washington, D. C., 1940.

**For Senior High School Pupils:**

Bartlett, H., *Social Studies for the Air Age*, Macmillan, New York, 1942.

Carlisle, N. V. *Your Career in Transportation*, Dutton, New York, 1942.

Dunbar, S. *A History of Travel in America*, Tudor, New York, 1937.

Gruen, F. *America's Battlefronts*, Foreign Policy Ass'n., New York, 1943.

Henry, R. S. *This Fascinating Railroad Business*, Bobbs-Merrill, N. Y., 1942.

Renner, G. *Human Geography in the Air Age*, Macmillan, New York, 1942.

National Resources Planning Board, *The Future of Transportation*, Supt. of Documents, Washington, D. C.

**For Teachers:**

Association of American Railroads, *A Study of Railway Transportation*, Ass'n. of Am. R.R.'s, Washington, D. C., 1942.

———. *Quiz on Railroads and Railroading*, Ass'n. of Am. R.R.'s, Washington, D. C., 1942.

Lissitzyn, D. *International Air Transport and National Policy*, Council on Foreign Relations, New York, 1942.

National Resources Planning Board, *Transportation and National Policy* (Report of Transportation Committee, Owen D. Young, chairman), Supt. of Documents, Washington, D. C.

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"Air Lines of the Future," *U. S. News*, Feb. 12, '43.

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Kaiser, H. F., "Air Cargo Transport," *Life*, Aug. 10, '42, p. 22.

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Schildhauer, C. H., "Air Transport," *Flying*, Feb. '43, p. 127.

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Speas, R. D. "The Future for Aviation," *Education*, Oct. '42, p. 117.

Stanton, C. I., "Wanted: Some Clear Thinkers," *Flying*, Dec. '42, p. 18.

"Winged America," *Building America*, v. VIII, no. 2.

Wittels, D. G., "Flying Boxcars for a Global War," *Sat. Eve. Post*, Sept. 12, '42, p. 12.

"World Airways," *Newsweek*, Mar. 1, '43, p. 26.

Ziff, W. B., "Report from Washington," *Flying*, Mar., '43, p. 32.

**Shipping—Oceangoing**

"Atlantic Convoy," *Life*, July 27, '42, p. 64.

"Battle of Shipping," *U. S. News*, Jan. 22, '43, p. 13.

Kaempffert, W. "Concrete Ships," *Sci. Digest*, Oct. '42, p. 62.

Klemmer, H. "Convoys to Victory," *Nat'l Geog.*, Feb. '43, p. 193.

Monsarrat, N. "Corvette on Convoy Duty," *Harpers*, Dec. '42-Jan. '43, p. 169.

Muller, E. "Convoy to Murmansk," *Readers Digest*, Nov. '42, p. 139.

Palmer, C. B. "Trip to the Hot Corner," *N. Y. Times Mag.*, Feb. 28, '43, p. 8.

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"Shipbuilding Records," *Bus. Week*, Dec. 26, '42, p. 67.

Taper, B. "Life with Kaiser," *Nation*, Dec. 12, '42, p. 644. See also *Readers Digest*, Feb. '43, p. 78.

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**Shipping—Inland Waterways**

"Wartime and the River," *Fortune*, July, '42, p. 69.

**Railroads**

Brandt, K. "Germany's Vulnerable Spot," *For. Aff.*, Jan. '43, p. 221.

Eastman, J. B. "Huge Task of the Railroads," *N. Y. Times Mag.*, Jan. 31, '43.

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"Lesson in Tank Cars," *Bus. Week*, Feb. 6, '43, p. 15.

**Motorized Transport**

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Martin, Pete. "A Bundle for Hitler," *Sat. Eve. Post*, Oct. 31, '42, p. 20.

"Trucks Help to Break Transportation Bottleneck," *U. S. News*, Oct. 23, '42.

## VISUAL MATERIALS

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*Transportation*, 2 reels, silent, U. S. Department of Interior, Bureau of Mines, Experimental Station, Pittsburgh, Pa.

*Men and Oil*, 2 reels, sound, Films, Inc., 330 West 42 St., New York City, Rent, $3.00.

*Transportation*, 1 reel, sound, Erpi Classroom Films, Inc., 35-11 35th Ave., Long Island City, New York, Sale, $45.00.

*Highways of Yesteryear*, 1 reel, sound, W. O. Gutlohn, Inc., 35 West 45 Street, New York City, Rent, $1.50.

*Wheels of Empire*, 1 reel, sound, Films Inc., 330 West 42 St., New York City, Rent, $1.50.

*Inland Waterways*, 3 reels, sound, Inland Waterways Corp., 211 Camp St., New Orleans, La., free.

*Queen of the Waves*, 1 reel, silent, General Electric Co., Visual Education Section, 1 River Rd., Schenectady, N. Y.

*Men and the Sea*, 1 reel, sound, Bureau of Motion Pictures, Office of War Information, Washington, D. C.

*The Freight Yard*, 2 reels, sound, New York Central System, 466 Lexington Ave., New York City.

*"Railroadin,"* 3 reels, sound, General Electric Co., Visual Education Section, 1 River Road, Schenectady, N. Y., free.

*Lake Carrier*, 1 reel, sound, Bureau of Motion Pictures, Office of War Information, Washington, D. C., free.

*Our Empire of the Air*, 1 reel, sound, W. O. Gutlohn, Inc., 35 West 45 Street, New York City, Rent, $1.50.

*Winged Horizons*, 4 reels, sound, Transcontinental and Western Air, 80 East 42 Street, New York City, free.

## TRANSPORTATION AGENCIES

Apply to the following agencies for additional information:

Aeronautic Chamber of Commerce of America, Shoreham Building, Washington, D. C.

Air Transport Association of America, 135 South La Salle St., Chicago, Ill.

American Automobile Association, Pennsylvania Ave. at 17th Street, Washington, D. C.

American Trucking Associations, Inc., 1424 16 St., NW, Washington, D. C.

Association of American Railroads, Transportation Building, Washington, D. C.

Automobile Manufacturers Association, New Centre Building, Detroit, Mich.

Civil Aeronautics Administration, Commerce Building, Washington, D. C.

Mississippi Valley Association, St. Louis.

National Aeronautic Association, 1025 Connecticut Ave., Washington, D. C.

National Association of Motor Bus Operators, 331 Tower Building, Washington.

National Resources Planning Board, Washington, D. C.

National Safety Council, 20 North Wacker Drive, Chicago, Ill.

Office of Defense Transportation, Post Office Building, Washington, D. C.

United States Maritime Commission, Commerce Building, Washington, D. C.

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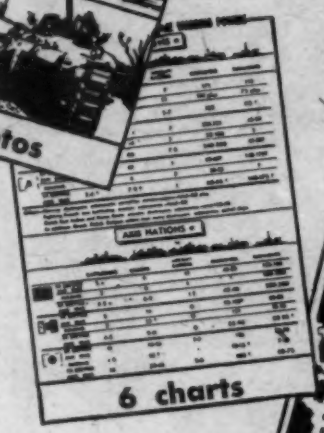

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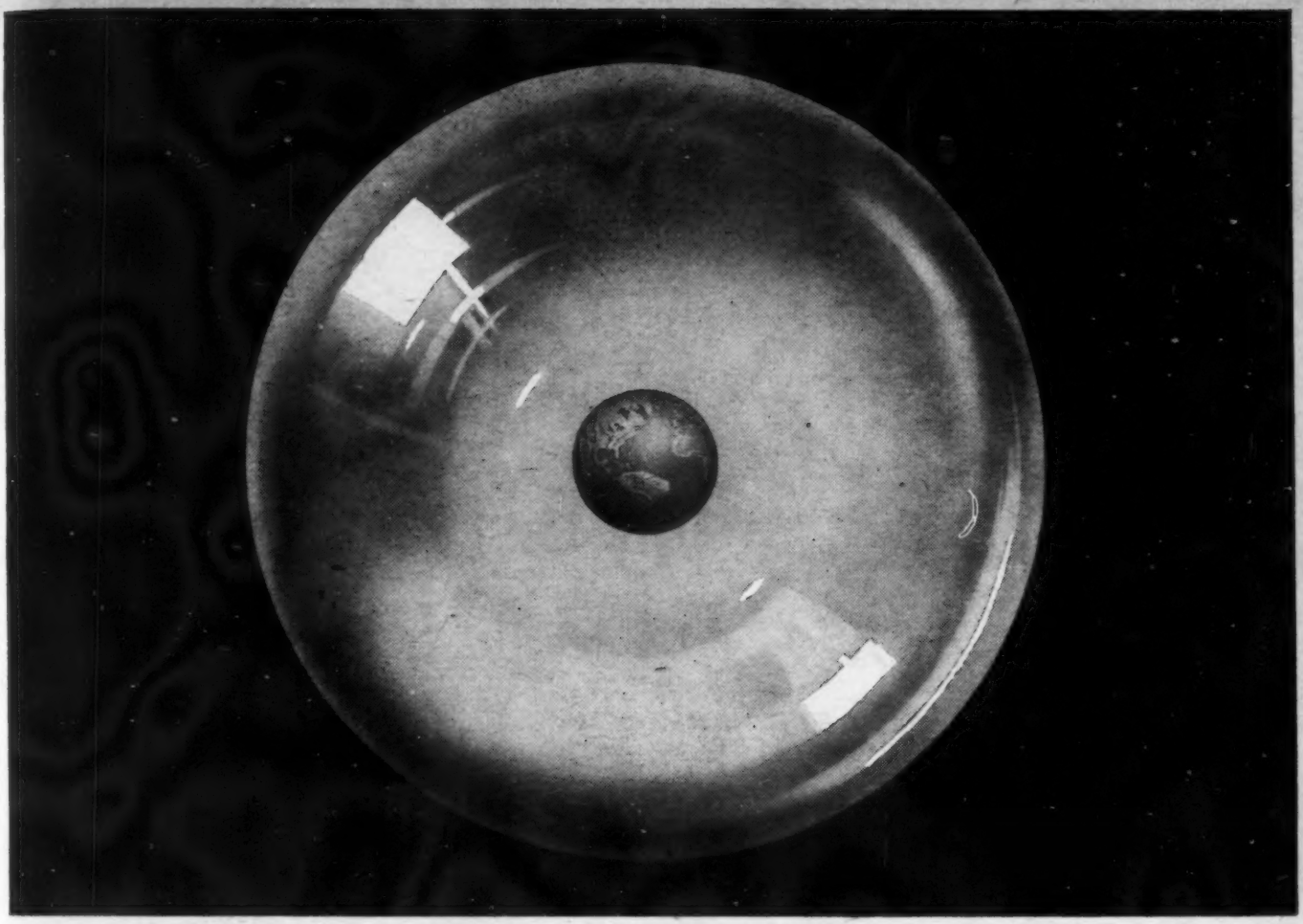


*WE SUBMIT THIS CONCEPTION OF OUR CHANGED WORLD AS THE BASIS FOR OUR*

# WAR-THINKING

**We exist upon one globe, and inside another globe.**

Our planet-earth is the center of a larger air-globe . . . It is like a small spherical kernel within a large spherical shell. Both globes, as one unit, follow the same orbit. We take our air with us—and always have.

The new factor that changes our world is the *use* of air as the only *universal* realm for transportation. In ratio as we *do* use it, we change the proximity and accessibility of all places, and effectively we make the world smaller.

* * *

With this conception as the basis for our war-thinking the world *could* make Peace permanent.

Not that human nature will change that much, that quickly, but because, after centuries of recurring wars, the human race now does possess the physical means of *enforcing* Peace.

* * *

Consider the *protective* possibilities of air:

Since air is *everywhere*, it is not possible for any person, clique or nation to hide anywhere upon the earth from air surveillance. If we have mastery of the air, we can reach the spawning grounds of the war plotters and prevent their preparations for war.

Consider the *productive* possibilities of air:

Today, *all* world markets are much *closer* neighbors than cities of the United States used to be. Air transportation makes possible a quicker post-war rehabilitation and a better world economic system.

* * *

World War I was a localized war. It was won by *surface* strategy. World War II is a *universal* war where there are no safety zones, because every inch of the earth's surface is a potential target for bombs from the air.

* * *

The world geography of 1918 is as obsolete as that of the ancient flat-world. That is why the post-war world will present problems as great as does this war-world —and why we will need aviation more *after* this war than during it.

After the Peace Conference we will have a much more *vulnerable* nation, because it is no longer an isolated piece-of-land, but an integral, inseparable and indivisible part of today's air-world. The *waters* of our two oceans could no more prevent air attack than did the *cement* of the Maginot Line.

* * *

The pre-air conception of the world was one of nations protected by vast oceans. All world economic, political and military thinking was predicated upon that surface-conception. Aviation has turned the page on that era!

Of course nations will continue to have boundary lines and will use land and water methods of transportation. But aviation changes all relative values; it nullifies the buffer nations, and makes possible that which has, for all man's prior history, been impossible.

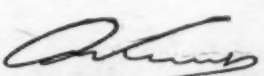
* * *

Since it is primarily the use of *air* that makes this a Global War, it must follow inevitably that a *dominant* use of air can maintain Global Peace.

* * *

The United States has the beginning of the aviation machinery necessary to implement its democratic ideals and prevent a repetition of the war-crime by any nation.

Attain the most powerful position in the air and automatically we will become the greatest Power for Peace.



A. N. KEMP
*President,* **AMERICAN AIRLINES, Inc.**

# *The Great* TRAIN MYSTERY *of 1954 A.D.*

**A SHORT STORY BY THE NEW HAVEN R.R.**

IT was back in the winter of 1954 A.D. that it all happened.

Three small boys building a snow man stopped to watch the Yankee Clipper flash down the straight-away just outside Bridgeport.

Suddenly, without a sound, the speeding Clipper vanished—train, crew, passengers and all—into thin air.

But that was just the beginning.

Soon the wires began to buzz in Boston, New York, Washington, San Francisco.

Over the air—in the papers—in the streets—the amazing news came out. Every train, everywhere, was gone—with the wind!

Some phenomenon of nature, people guessed . . . and trembled. A few wise old scientists, wagged their heads knowingly—but kept silent. Even the most brilliant young minds of the day couldn't solve the mystery.

Days passed . . . but the trains didn't return. Fear gripped the hearts of people.

By order of the President, everything left that could roll or fly was pressed into 24 hour emergency service.

Ships brought all the coal, oil, lumber, raw materials for the mills. Huge planes carried loads of meat, potatoes, vegetables, fruits for hungry people.

Trucks heroically strove to deliver the goods from seaport to inland factories—from airports to market places.

But docks and ports piled up. Highways became jammed. At best, deliveries were only a trickle.

Prices soared to the sky. Oranges, for example, suddenly cost $4.00 a dozen. Most things, you couldn't buy at any price.

The job simply couldn't be done—not for less than 50¢ to $3.00 per ton mile as compared with $.009 per ton mile by train.

Hampered by lack of raw materials and fuel, great industries shut down.

Headlines screamed PANIC!

It might have been the end of things as we know them—the end of industry, and progress and modern civilization.

It certainly would have been, had not Nature, of her wisdom, finally seen fit to press the button that brought the trains from nowhere back to earth again.

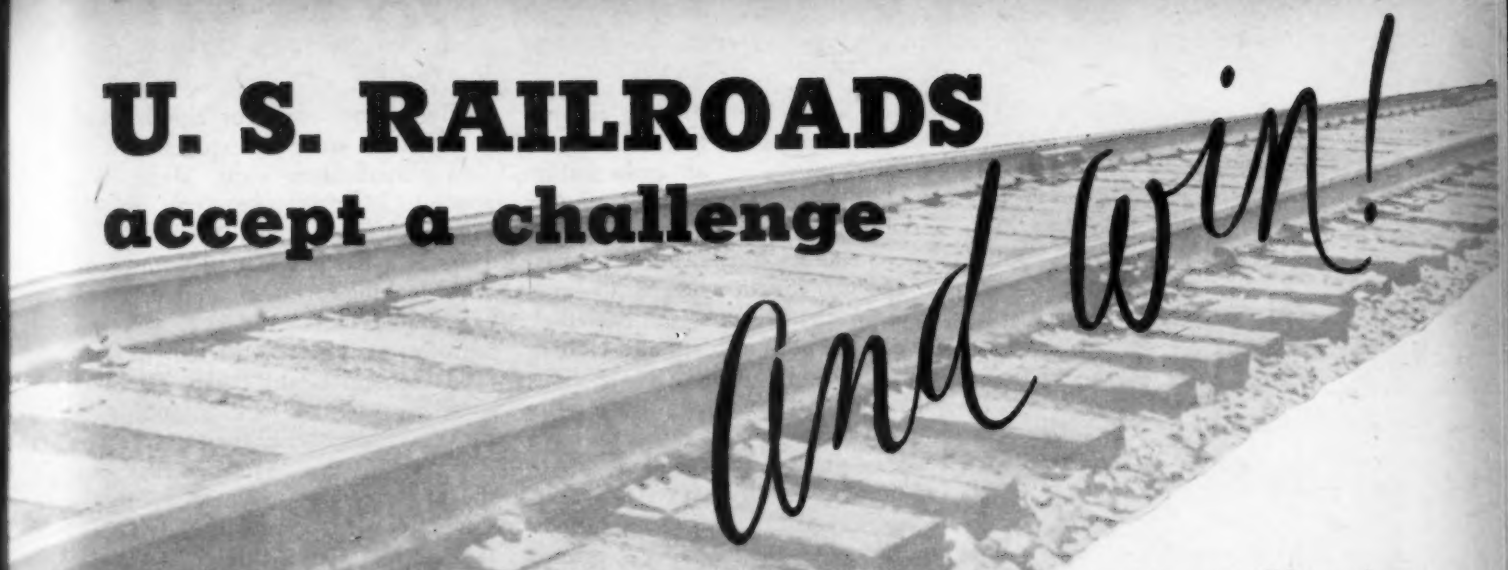
• • •

The mysterious panic of 1954 will not happen then—or ever, of course! The simple purpose of this story is to bring it home that trains perform a task that no other form of transportation can possibly do so cheaply, or so dependably—and that trains *have* a place both now—and in the scheme of things to come.

The New York, New Haven and Hartford Railroad Co.

**THE LIFELINE OF NEW ENGLAND**

# U. S. RAILROADS accept a challenge and win!



"THE Japs are bombing Pearl Harbor!"

Among the men racing toward the War Department as that fateful news flashed in on Sunday, December 7, 1941, was one man who knew that the railroads faced the greatest challenge in all their history. The man was, strangely enough, a civilian. His name is Arthur Gass, and he has a job that few people know about—a job of vast importance to American transportation. He is head of the Military Transportation Section, a division of the Association of American Railroads. Actually, it may be thought of as part of the War Department itself.

There were sleepless nights ahead in the MTS. For four days the director worked continuously, rushing out the order to railroads all over the nation. Collect all usable cars! Clear tracks! Prepare for huge troop movements! America was going to war, and the railroads had a moving job to do.

What a job! Already the railroads of the nation were carrying thousands of troops, tons of lend-lease equipment. Now the whole tempo was speeded up—the job was vastly bigger. World War I with its transportation problems looked insignificant by comparison. Upon the railroads fell the responsibility of moving not only troops, but all the materials for army and navy bases, for the expanding arsenals, for shipyards and steel mills and aircraft factories—raw materials flowing in, finished equipment pouring out.

To the Office of Civilian Defense went the great task of regulating the multiple activities of the railroads. It was a coordination problem that called for all the skill of the OCD's railroad experts. Sensible "rules of the game" had to be worked out to help, rather than hinder, the railroads in meeting the big job ahead.

### Ten Million Troops

Look for a moment at the job of moving troops. During the twelve months following December 7, 1941, the railroads handled in organized movements more than 11,000,000 members of our armed forces—more than three times as many as were carried during America's first year in World War I. This figure does not include other millions of soldiers, sailors and marines who traveled as individuals on leave. The rate of movement has been stepped up until now nearly 1,750,000 fighting men are traveling monthly on the railroads in organized parties.

And look at the equipment. To move a triangular infantry division (three regiments) of approximately 15,000 men and their equipment involves the operation of 65 trains consisting on the average of 21 cars each, or a total of 1,350 cars. If the movement is for any great distance, the service of scores of locomotives will be required en route. An armored division, which includes about 3,000 vehicles and other mobile units, requires 75 trains ranging from 28 to 45 cars each. On peak days of military travel, as many as 3,300 Pullmans have been set aside for troop transport.

How does all this troop movement start? The plans come from the General Staff of the Army. When it wants a certain division moved, an order is sent to the Army's Services of Supply. It is then turned over to the Traffic Control Section of the Army Transportation Corps for advance planning. The rail transportation officer of the division breaks the movement down into cars and trains and determines when the men and their equipment will be ready to leave, their starting points and their destinations. This information is then passed along to the Association of American Railroads, which then makes arrangements with each railroad involved. The whole process is a miracle of coordination.

### Mountains of Freight

If the railroads had to concern themselves only with moving troops, great though this task is, they would have a comparatively easy time. But there are all the other non-human cargoes that somehow must get through. There are such cargoes as the 28,000,000 bushels of corn which the Government suddenly ordered shipped by rail—a little matter of 15,500 freight cars. There is the daily job of hauling 1,600,000 tons of coal; 6,000 carloads of freight to the more than 150 widely scattered Government camps; 33,000,000 gallons of oil; hundreds of carloads of food for the Army and Navy. And this is not just *some* days, but *every* day of the week.

A big job? It would be hard to think of a bigger one. Many people did not think that the railroads could do it. What did they have to meet this mighty challenge? There is good reason why that question should be asked.

"By the time the war started in 1939," says Joseph B. Eastman, Director of Defense Transportation, "the railroads were carrying only about one-third as many passengers annually as in the peak year of 1920, although they were carrying them farther, so that the figure for passenger-mile (passengers carried one mile) was approximately one-half that for 1920. Motor buses had already taken the place of the old local train . .

"The drastic reduction in rail passenger traffic had naturally been accompanied by the retirement from service

Pullman Co.

**Uncle Sam's fighting men travel by Pullman. Alert, clean, relaxed, they snap to at a new post ready to go.**

of large numbers of passenger locomotives and coaches. By 1941, when passenger traffic was beginning to show signs of real revival, the carriers had only half as many passenger locomotives as in 1920 and only two-thirds the number of passenger carrying cars."

### Improved Equipment

The railroads were *better*. Between 1923 and 1942 they spent ten billion dollars on new equipment. The money went into new and improved locomotives, heavier rails, stronger tracks, bigger repair shops, better freight cars. Big and tough is the way to describe those new locomotives. Since 1918 the power of the average steam locomotive has been increased about 50 per cent.

Better equipment was just one of the reasons the railroads could win the fight. Another secret was *organization*. Besides the tremendously efficient organizations of each railroad, the Association of American Railroads had set up five important services. The Car Service Division has the job of routing freight cars throughout the country. "Keep 'em moving" is the constant watchword of the expert traffic men who tell the railroads what, where, and when in freight cars.

The Military Transportation Section has its big job in transporting the Army and its supplies. The Port Traffic Section keeps constant track of all cars moving to and from seaports. It sees to it that cars are delivered, unloaded, returned promptly. They help to avoid the appalling complications which arose when thousands of cars piled up at embarkation ports in World War I. The Tank Car Section has the oil transportation problem as its special job. The Passenger Car Section keeps its eyes on the passenger cars, and how they are used in both military and civilian transportation. Put these five sections together, and you have one of the big reasons why the railroads have successfully met war challenges.

Throughout the nation are scattered 530 Car Efficiency Committees, composed of members of Regional Shipping Advisory Boards. They are minute men of transportation who have helped to unsnarl many difficult situations. A manufacturer answers his telephone. "This is Bill Jones of the Car Efficiency Committee," he hears. "I hear you have eight freight cars still on your siding. Been there three days. How about doing something about it?" The manufacturer gets the cars unloaded.

### War's Strange Cargoes

Railroading has always been exciting. Who hasn't been thrilled by the sight of a thundering "iron horse" or a glittering modern streamliner? Now activity on the railroads has become more fascinating than ever. Visit the classification yards of a modern railroad where the railroaders "put 'em over the hump."

You'll see some strange cargoes in that classification yard. Here is a special 24-wheel flat car which cradles a giant coast defense gun. Here is a flat car loaded with awkward-looking prefabricated sections of steamer hulls. And here you see car after car loaded with canvas covered General Grant tanks. There is a grim, war-like look to many of these cargoes bound for the far corners of this battle-torn earth. But the ordinary freight cars—the thousands upon thousands of them, contain cargoes just as vital.

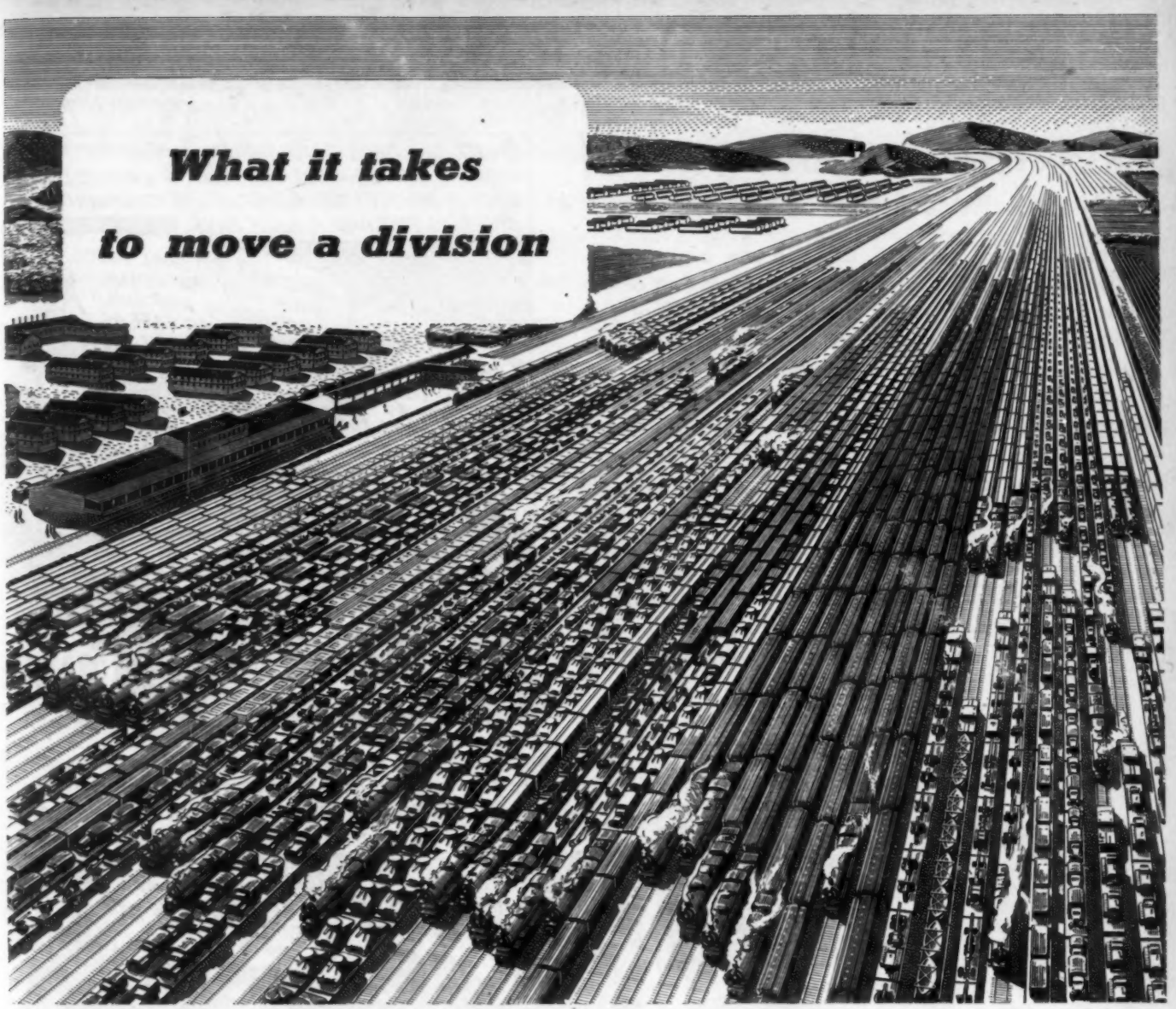
Don't think that a freight car is just a freight car. They're each made to do a particular job. Hopper cars with watertight hatches protect cement. Army tanks and bomber wings are loaded through special end-loading boxcars. There are more than 100 different kinds of tank-cars.

When the freight trains are rolling down the rails they move with new speed and safety, thanks to modern improvements. In some cases, two tracks have been turned into the equivalent of four by the installation of special signals permitting an eastbound train to race forward on what is normally the westbound track.

Thus the mighty challenge has been met. The iron horse has proved itself to be a fighting charger.

U. S. Army Signal Corps

**Trainmen, brakemen, engineers work all night on a siding. Next morning a line of tanks a mile long rides the rails to fighting fronts.**




IF, like the eagle, you could look down on the amount of railroad equipment it takes to move a single armored division, here is what you would see . . . *75 trains!*

Many passenger trains, many freight trains—all required to move just *one* division. For a division takes all its equipment with it—tanks, jeeps, armored cars, supply trucks, tractors, anti-aircraft guns, many things. And its men, numbering about 12,000, need berths in which to sleep!

What's more, when this division moves by rail, it moves as a unit—that is, trains following one another a few minutes apart.

Now, in terms of trains, those *75 taken out* of civilian service and *put into military service*, are *about equal to* the number of passenger trains running daily over the Pennsylvania Railroad between *two of the busiest places on the face of the globe*—New York and Washington.

Multiply this one division by the many moving in this country and you can understand why . . . you may have difficulty getting a berth . . . or be obliged to stand in a coach . . . or arrive at your destination late. In fact, demand for equipment is now so great that on arriving at terminals cars must be put right back into service, so you may find them not quite so spic and span as we would like. Housekeeping facilities are adequate but there's not always time.

But Americans are taking all this like good soldiers. For they know this is a war of movement, and that movement begins right here — *in America, on the rails.*

BUY UNITED STATES WAR BONDS AND STAMPS

**PENNSYLVANIA RAILROAD**

*Serving the Nation*

★ *27,917 in the Armed Forces* ☆ *21 have given their lives for their country*

# BUILDERS OF AMERICA

PICTURE BIOGRAPHIES FROM U.S. HISTORY

TEXT BY FRANK LATHAM

DRAWN BY FRANK RONAN

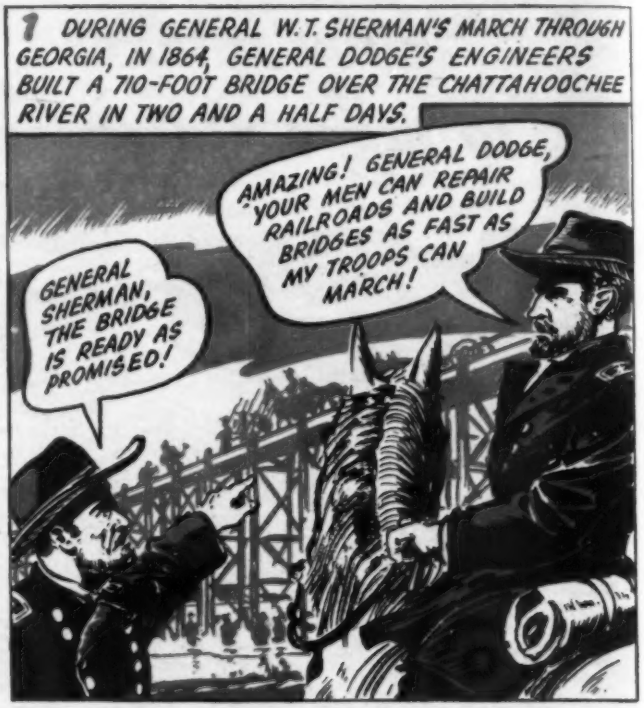
## GRENVILLE M. DODGE (1831-1916)

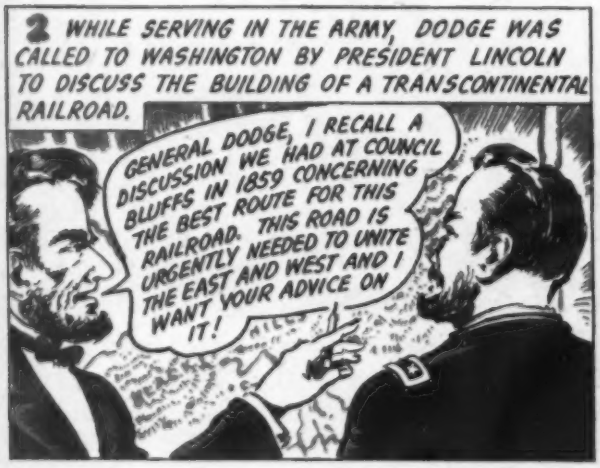
### Pioneer Railroad Builder

GENERAL GRENVILLE M. DODGE was a great railroad pathfinder who laid the foundation of the transportation system in the Western half of the United States. He worked as a railroad engineer, builder, and manager for 60 years.

During the War Between the States, General Dodge won fame as an engineer rather than as a leader of troops in battle. General Grant and General Sherman considered Dodge to be without an equal as a builder of railroads and bridges needed to move armies and supplies.

General Dodge was born in Danvers, Massachusetts, and was graduated from Norwich (Vermont) University, a military school. He went West in 1852 and served as an engineer for the Illinois Central, and Mississippi and Missouri Railroads.


1 DURING GENERAL W.T. SHERMAN'S MARCH THROUGH GEORGIA, IN 1864, GENERAL DODGE'S ENGINEERS BUILT A 710-FOOT BRIDGE OVER THE CHATTAHOOCHEE RIVER IN TWO AND A HALF DAYS.
GENERAL SHERMAN, THE BRIDGE IS READY AS PROMISED!
AMAZING! GENERAL DODGE, YOUR MEN CAN REPAIR RAILROADS AND BUILD BRIDGES AS FAST AS MY TROOPS CAN MARCH!


2 WHILE SERVING IN THE ARMY, DODGE WAS CALLED TO WASHINGTON BY PRESIDENT LINCOLN TO DISCUSS THE BUILDING OF A TRANSCONTINENTAL RAILROAD.
GENERAL DODGE, I RECALL A DISCUSSION WE HAD AT COUNCIL BLUFFS IN 1859 CONCERNING THE BEST ROUTE FOR THIS RAILROAD. THIS ROAD IS URGENTLY NEEDED TO UNITE THE EAST AND WEST AND I WANT YOUR ADVICE ON IT!

3 IN 1865-66, DODGE COMMANDED TROOPS AGAINST THE INDIANS IN THE WEST. DURING ONE SCOUTING TRIP HE WAS ATTACKED BY INDIANS. AND, WHILE ESCAPING, HE ACCIDENTALLY DISCOVERED A PASS THROUGH THE BLACK HILLS.
GENERAL! THIS RIDGE WE ARE FOLLOWING LEADS THROUGH THE BLACK HILLS!
RIGHT! WE'VE FOUND A RAILROAD ROUTE OVER THE MOUNTAINS!

4 DODGE BECAME CHIEF ENGINEER OF THE UNION PACIFIC RAILROAD IN 1866. HIS CONSTRUCTION CREWS, MOSTLY EX-SOLDIERS, LAID DOWN FROM THREE TO EIGHT MILES OF TRACK A DAY WHILE FIGHTING OFF THE INDIANS.

5 ON MAY 10, 1869, AT PROMONTORY POINT, UTAH, THE U.P. RAILS MET THOSE OF THE CENTRAL PACIFIC, WHICH WAS BUILDING EAST FROM CALIFORNIA. AS THE FINAL SPIKE WAS DRIVEN THE BLOWS WERE CARRIED BY TELEGRAPH THROUGHOUT THE NATION.
THAT'S LELAND STANFORD OF THE CENTRAL PACIFIC AND THOMAS C. DURANT OF THE U.P. DRIVING THE GOLD SPIKE WITH A SILVER SLEDGE HAMMER! WE'RE A UNITED NATION NOW!
FRANK RONAN

# VICTORY QUIZ WHAT'S YOUR VQ?

**Test your "Knowledge for Victory!" These questions are based on articles in this issue. A perfect score is 100. What's *your* VQ? Answers appear in Teachers Edition.**

## 1 HEADLINE NEWS

These sentences have been "scrambled." Six place-names, printed in bold-faced type, are in the wrong sentences. Put the place-names in the proper sentences. Score 4 points each. Total, 24.

1. An air armada of the United Nations wiped out a Japanese convoy northeast of **Wilhelmshaven.**
2. The convoy had sailed from **Kharkov,** the Japanese base on the island of New Britain.
3. On the northern front, the Russians recaptured the important "hedgehog" city of **Rabaul.**
4. The Russians are rebuilding the great steel center of **Berlin.**
5. The Canadians blasted the German submarine base of **New Guinea.**
6. Block busters rained down on Unter den Linden, the famous street of **Rzhev.**

My score_____

## 2 TRANSPORTING A GLOBAL WAR

In the lefthand column are initials of five Government agencies (or Army services) which are concerned with transportation. In the righthand column are the duties of these agencies, but in the wrong order. Match each duty with the correct agency. Score 4 points each. Total, 20.

| | |
|---|---|
| 1._____ODT | A. Trains seamen for merchant ships. |
| 2._____SOS | B. In charge of air transportation of the Army. |
| 3._____TC | C. In charge of Army transportation except by air. |
| 4._____WSA | D. In charge of domestic transportation. |
| 5._____ATC | E. In charge of Army supplies. |

My score_____

## 3 LOGISTICS

Transportation conditions of five United Nations are described in the following sentences. Write in the correct name of a nation in the space at the end of each sentence. Score 5 points each. Total, 25.

1. The 1,600-mile Alcan Highway starts in this nation. _____
2. We are helping this neighbor to develop her railroads, to speed the delivery of raw materials to U. S. factories. _____
3. The courageous railwaymen of this island nation have earned the title of "soldiers of the home front." _____
4. The Trans-Iranian Railroad carries supplies to this large nation. _____
5. One of the "backdoors" of this nation was the Burma Road. _____

My score_____

## 4 OXCART TO STRATOSPHERE

Draw a circle around the correct answer to each of the following questions. Score 4 points each. Total, 16.

1. What was the name of the road built by the Government in 1806?

National Highway Lincoln Highway Alcan Highway

2. What was the first steamboat to cross the ocean?

*Morro Castle* *Leviathan* *Savannah*

3. Who built the *Tom Thumb*?

Peter Cooper George M. Pullman Robert Fulton

4. What canal connected the Great Lakes and the Hudson River?

Wellington Canal Erie Canal Suez Canal

My score_____

## 5 LIFELINES OF THE SEVEN SEAS

Select the ending that correctly completes the following sentences. Score 5 points each. Total, 15.

1. A disadvantage of the convoy system is that the merchant ships (a) have no protection; (b) must travel at the speed of the slowest ship; (c) are weighed down with heavy guns.
2. Supplies are carried to our fighting men and our allies by the (a) U. S. Navy; (b) U. S. Merchant Marine; (c) U. S. Marines.
3. The greatest menace now facing our cargo ships is (a) mines; (b) Axis planes; (c) submarines.

My score_____

My total score_____VQ

## IMPROVE YOUR VOCABULARY

**irreplaceable** (ir-ree-PLACE-uh-bl). Impossible to replace; said of something for which no substitute can be found.

**fetid** (FETT-id). Having a disagreeable odor.

**sampan** (SAM-pan). A flat-bottomed Chinese river boat. The word comes from the Chinese *san* meaning "three," and from *pan* meaning plank or board. The boat is made of three boards.

**terrain** (teh-RAIN). A tract or region of ground.

## NAMES & PLACES IN THE NEWS

**Cologne**—ko-LONE.
**Lae**—LAY-ee.
**Rabaul**—RAH-boul.
**Unter den Linden**—OON-tair dane LINT-en.

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# INLAND WATERWAYS

## Not so slow as you think

"WE'VE got to get through!" There was a look of determination on the grizzled face of the old sea captain as he gave his men their orders.

Down the blue and sometimes storm-lashed waters of the Great Lakes move the red cargoes of iron ore from the Mesabi and Marquette ranges, destined for the great blast furnaces of Gary, Youngstown, and Pittsburgh. Through the locks of the Sault Ste. Marie, 100 million tons of ore will move in 1943. Through these same locks go other cargoes—among them tremendous loads of wheat to provide food for the United Nations. Some wheat ships carry over 500,000 bushels, which is equivalent to the load of a freight train of over 200 cars.

The citizens of Duluth, on the tip of Lake Superior, speak in terms of millions of tons, miles of ore trains, hundreds of ore trucks and steam shovels. They are proud of their production and shipping rates. And they have a right to be!

### The Ore Goes Through

The six fields of iron in the hills around Lake Superior yield 83 per cent of the country's iron. Last year that 83 per cent amounted to 90,000,000 tons! It is loaded and shipped from Duluth's docks in a veritable parade of freighters. Twenty-four hours a day, through ice jams and blizzards, the ore keeps moving. From December to late in March the lakes fill with ice and boats stop. This winter, ice-breakers plowed their way through the jams to lengthen the shipping season.

The greatest artery of inland transportation is still the mighty Mississippi. In the flourishing days of the old paddle-wheelers, the river carried only a small fraction of the tonnage being carried in this year of 1943.

Steel is carried from Chicago to New Orleans by barge. Coffee is shipped by water from New Orleans to Memphis. Sugar is shipped from New Orleans to Bermingport. Oil to serve the needs of the Middle West moves along the intracoastal canal from Texas to Louisiana, then up the Mississippi and Ohio.

Time has become the most important element of transportation. To ship freight by our inland waterways is not so slow as you may think. It is estimated that a carload of flour can leave Minneapolis at seven in the evening and be in New York the morning of the fourth day. By railroad, it would take until after midnight of the fourth day, the route being longer and many hours being lost in the busy Chicago freight yards.

A Mississippi barge has an amazing capacity. A single tow of six barges may carry 12,000 tons of mixed cargo. That equals the load that can be carried by 241 freight cars, or 24 times the capacity of the old-time packet steamboat. One tow of barges has moved as many as 26,000 tons of coal.

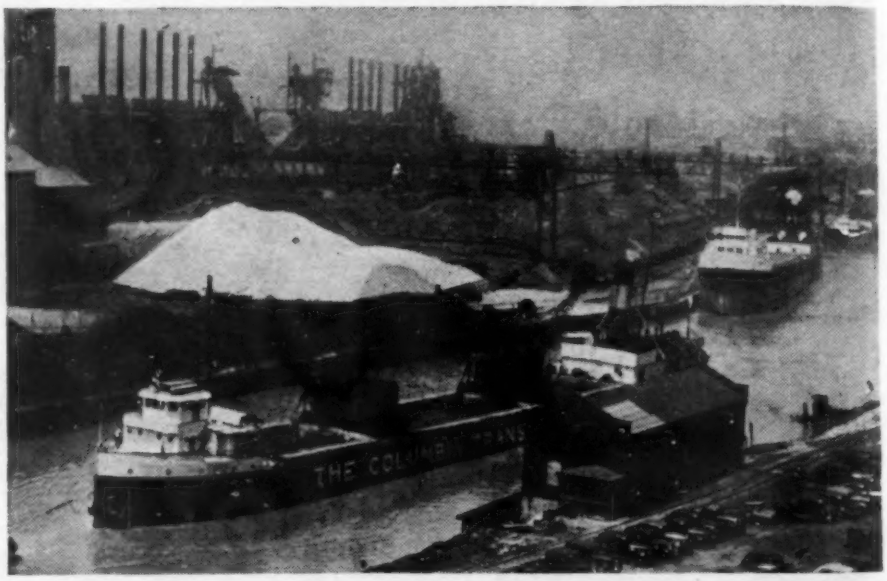
In the early days of the United States, before the railroads, the waterways afforded the principal means for the long-distance movement of heavy commodities. In every war in which we have had a part, our network of inland waterways has played a vital role. In the Civil War, military strategy was based in a large measure upon control of the Ohio, the Mississippi, the Tennessee, and other rivers. When our transportation system broke down during World War I, we again turned to the rivers for help, and every piece of floating equipment was put into use to relieve the congestion.

And now again, during World War II, with the added burden placed upon our railroads, and the need for coordinated transportation of supplies necessary for war, the Great Lakes and the Mississippi and its tributaries which directly serve the river ports of 17 states, are being used in full cooperation with truck and rail services.

The rivers and lakes themselves may remain the same, but transportation on them has improved and progressed as has any other form of transportation. River channels have been improved for navigation and the 9-foot channel has become standardized.

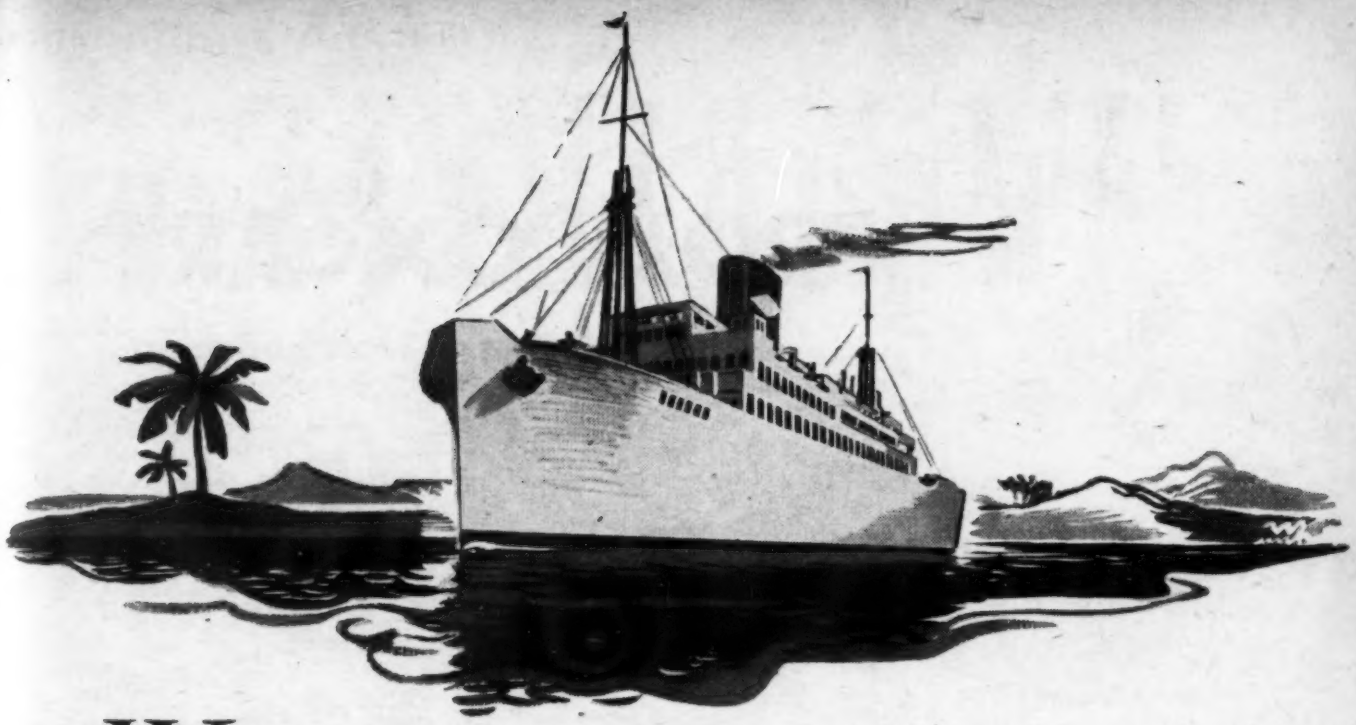
The expansion of water transportation in wartime is not to be wondered at. Of all forms of transport it is capable of the greatest expansion with the least cost in material.

Waterways are also the least vulnerable to attack of all forms of transportation. If we ever were attacked by the Axis on our own shores, it is likely that rail lines and terminals would be destroyed, but all the bombs in the world could not blow up a river! Even if the enemy succeeded in crossing the thousand miles of land he would have to cover to reach the Mississippi, he could not destroy enough locks and dams to fatally cripple traffic on the rivers.



Charles Phelps Cushing

**Scrap for the bellies of blast furnaces arrives at Cleveland steel mills from Detroit auto plants. Boats return to Detroit with steel.**



# When ships can be spared...

FOR more than forty years, ships of the Great White Fleet have played a vital part in the development of trade and commerce between the United States and our Good Neighbors, the Republics of Middle America.

Thousands of men and women sailing on these American flag liners have built good will within these countries.

Below decks these ships have moved the cargoes that have been the very lifeblood of Inter-American economic health and growth... Northbound with bananas, coffee, cocoa beans, pineapples and other important Middle American exports... Southbound with farm and factory machinery, cars, radios, and other products so necessary to Middle America's progress and prosperity.

Today, this traffic is greatly changed. The United States and Middle America are *fighting side by side* in a war that *must be won* no matter how great the sacrifices or how difficult the disruption of peacetime patterns. With Inter-American shipping, for example, men and materials vital to the actual war effort must be moved first.

Many wartime essentials, formerly imported almost exclusively from the Pacific Tropics, are now being grown and shipped from Middle America... rubber, abaca or manila hemp, cinchona for quinine, palm oil, rotenone and others... while hides, minerals and essential tropical woods such as balsa and mahogany have taken on new importance as Middle American exports.

But when ships can be spared, after Victory or perhaps before, those great food surpluses of Middle America—especially bananas — will again come into their own... helping to feed a hungry, war-ravaged world....

★ ★ ★

*Today, as always, the Great White Fleet is proud to be serving the Americas... proud to be wearing wartime grey as it carries out government orders necessary for Victory and the protection of the entire Western Hemisphere. Tomorrow, it will be ready to resume its place in the trade and travel between the United States and Middle America.*

# Great White Fleet

**UNITED FRUIT COMPANY**

*Buy War Bonds and Stamps regularly and budget for that "trip to come."*

GUATEMALA ★ EL SALVADOR ★ HONDURAS ★ NICARAGUA ★ COSTA RICA ★ PANAMA ★ COLOMBIA ★ CUBA ★ JAMAICA, B. W. I.

# FROM OXCART . .

## The Evolution of Transportation

**YOU — THE AVERAGE AMERICAN TODAY**—have traveled faster than any of the rulers of ancient times. You can go far more miles in a small fraction of the time that Alexander the Great, Julius Caesar, Henry VIII, Louis XIV, or even Napoleon could. For in the thousands of years from the dim dark days of the Stone Age to the 19th century, the means of transportation improved less than it has in the last brief 100 years.

Back in the prehistoric period, some unknown genius found a way to train animals to carry burdens. Other primitive inventors learned how to build rafts or to make canoes out of hollowed logs, bark or skins. These were great achievements.

### It Began with the Wheel

Chapter two in the history of transportation began when the wheel was invented. The idea of a wheel seems so simple that you would think almost anybody should have thought of it. But in the world today there are savage peoples who do not use wheels. Such people are still living in their own private Stone Age. The wheel made great forward steps in transportation possible. Carts and wagons were developed; roads were built—though up to the time of the Romans roads were almost always bad.

That is about as far as land transportation progressed from ancient times down to the administration of Thomas Jefferson, our third President. On the water, progress had been little better. Ships such as the ancient Phoenicians, Greeks and Romans used, rowed largely by slave power, had been improved only slightly up to the time of the Crusades. By the 1400s men had learned how to sail by wind-power alone. The great voyages of Vasco Da Gama, Columbus, Drake, and others became possible.

### Highways and Post Roads

In 1790 travelers said that there was but one good road in America, the Lancaster Pike in Pennsylvania. When Washington was inaugurated, a trip by coach over the Post Road from Boston to New York took about a week of jolting, uncomfortable travel, 16 hours a day.

Then in 1806 the Federal Government decided to build the National Road—our first lifeline between East and West. Work went on for years, and as sections of the road were opened to traffic, wagons, coaches, post riders, and westward-moving settlers crowded the new highway. By 1852 the road was completed through Maryland, Pennsylvania, Ohio, and Indiana, almost to St. Louis. By that time, railroads had replaced highways in importance, and construction ceased. Many other roads were built during the early 1800s.

During these same years canals enjoyed a boom. The Erie Canal, connecting the Great Lakes and the Hudson River, was not America's first canal, but it was the longest. Completed in 1825, this canal proved that goods could be sent much more cheaply and about as rapidly by barge as by wagon. Many other canals were built during the 1830s and 1840s. With the coming of the railroads, canals lost their Number One position as carriers of the nation's commerce.

### Steamboat 'Round the Bend

The first really successful steamboat in America was Robert Fulton's *Clermont*. This 150-foot vessel made its first trip up the Hudson River from New York to Albany at about five miles an hour, in 1807. The *Clermont* was a "gold mine" from the start. Fulton and his friends built more steamboats, among them being the *New Orleans*. Steamboats were the answer to transportation problems in the great Mississippi Valley for many years after the trip of the *New Orleans* in 1812. In a few years' time hundreds of paddle-wheel boats churned their way up and down the wide rivers of our Middle West. As the railroads grew in importance, traffic by river steamboats gradually declined.

Meanwhile, on the ocean, sailing vessels slowly gave way to steam. Among the first of the steamers to cross the ocean was the *Savannah*, a side-wheeler like the *Great Eastern* which Cyrus Field used to lay the Atlantic cable in the 1860s. Later in the 19th century, ships of iron and steel replaced the wooden vessels, and paddle-wheels gave place to propellers.

# to stratosphere

### The Iron Horse Arrives

In the 1820s some citizens of Baltimore, anxious to capture some of the trade and profits going by way of New York's Erie Canal, decided to build a railroad from Baltimore out to Ohio. At first, they planned to operate horse-drawn cars over the tracks of the "B. and O." But Peter Cooper built a small steam engine which ran on rails. He called it the Tom Thumb, after the famous midget. The *Tom Thumb* was hardly more than a model, though it came close to beating a horse car in a race over the B. and O. tracks in 1830. It was not the first locomotive to run in America. That honor goes to the *Stourbridge Lion*, an English engine, which had been tried out in the summer of 1829.

Meantime, cotton merchants in South Carolina built a railroad from Charleston to the plantations. They planned to use steam engines from the start. In the summer of 1830 a locomotive called the *Best Friend of Charleston* made its first trip. By the following summer the B. and O. put its first real locomotive, the *York*, into service.

Then the railroad fever swept the United States. It is easy to see why the railroad was so readily accepted by the American people. Great distances had to be connected. Good highways were costly to build. Trains were faster and more efficient than stage coaches. Canals sometimes froze over in winter or dried up in summer. For such reasons Americans hustled to lay railroad tracks. North, south, east and west the railroad web was spun. Towns and cities along railroad lines grew and prospered.

Railroad mileage mounted to over 30,000 miles in 1860, and 53,000 in 1870. Part of this increase was because the continent had been crossed by rail in 1869 when the *Union Pacific* and *Central Pacific* lines met at Promontory Point in Utah. Gone forever were days of the *Pony Express* and the long lines of covered wagons swaying slowly across the prairies and crawling through the mountain passes. Within a few more years' time, several transcontinental lines stretched from coast to coast.

During these years many improvements had been made on America's railroads. Wooden tracks were replaced by iron and later steel rails. Morse's telegraph, invented in 1844, became the eyes and ears of our railroads. Locomotives grew steadily in size and power. Freight and passenger cars became larger. The Pullman Company put its parlor cars and sleepers on the railroad lines in the 1870s. Railroads throughout the country standardized the width of their tracks at 4 feet 8½ inches so that trains could run from one line to another, greatly simplifying the movement of freight. Westinghouse developed his air-brake, which made it possible to stop trains quickly, smoothly, and safely.

### America's Railroads Today

Today stream-lined trains glide along at speeds of 80 miles an hour. Giant locomotives weighing 350 tons haul mile-long freight trains. Electric engines and locomotives powered with Diesel motors have come into use. The lines and equipment of our 50 or more great railroad systems today are worth about $26,000,000,000. They cover nearly 250,000 miles of track—enough to go ten times around the world.

### Horseless Carriage

When America's railroad fever was at its height, a few men were tinkering with engines mounted on carriages. Some tried out steam engines. Others experimented with engines driven by alcohol, carbonic acid gas, or electricity for their "horseless carriages."

Steam-driven cars had some vogue, but quickly gave place to gasoline engines.

By 1920, the "Automobile Age" was in full swing. Self-starters, durable tires, metal bodies, shock absorbers and many other improvements made driving a pleasure.

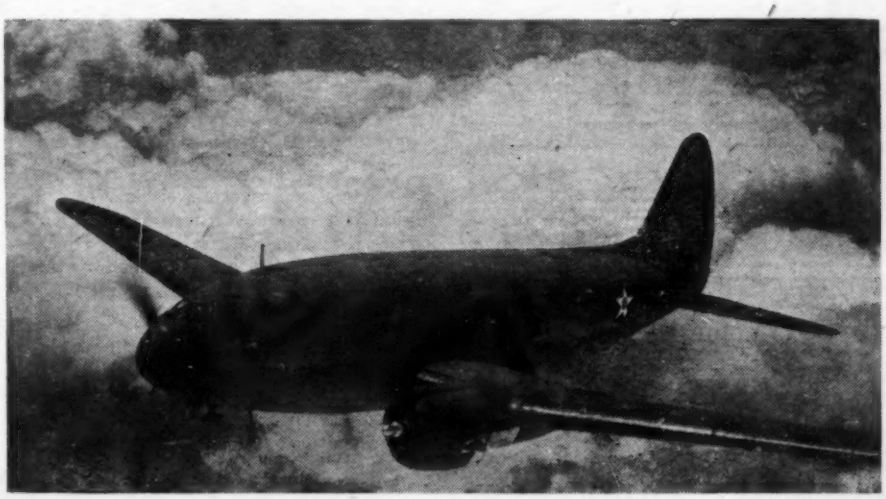
As the cars and trucks on America's roads grew in number, it became clear that more and better roads had to be built. Our road builders have not yet caught up with our automobile builders. Though we have today about 550,000 miles of hard-surfaced roads, they are for the most part not wide enough, and lack safe entrances and exits.

### Air Age Arrives

Within a few years after the Wright brothers made their famous flight in 1903, airplanes had become common in the United States and Europe. During World War I, great improvements were made in airplane design and performance. In 1918 the Post Office Department started air mail service and a few airlines began to carry passengers. Bigger planes with closed cabins, like the Ford tri-motor transport planes, came into use.

More airlines were organized and flew planes on regular schedule over the CAA's approved routes. Air service by clipper to Latin America and across the Pacific began in the 1920s and 1930s. By 1930, American-owned and operated airways made up about half the world's airlines.

Now we have a new way to travel and transport our goods. Now, at last, men can fly at 300 or more miles an hour at heights of 30,000 feet, over storms, oceans, deserts, or the frozen poles.



Curtiss-Wright Corp

**The 25-ton Curtiss Commando transport speeds armed infantrymen, paratroops, jeeps, field artillery and mobile equipment to battle zones.**

# SOME FUN

### That's Enough

*Teacher:* "What do you know about Italy?"

*Pupil:* "All I know is that it's shaped like a boot and run by a heel."

Bobby Werba, Rush Twp. School, Philipsburg, Pa.

### Shock

*Policeman:* "What's the idea of knocking this man down?"

*Motorist:* "I didn't, officer. I stopped to let him cross the street, and he fainted."

Robert Boone, Marshall Elementary School, Detroit, Mich.

### Crop

*Customer:* "Let me have some bird seed, please."

*Storekeeper:* "What kind of birds do you have?"

*Customer:* "Oh, I haven't any yet—I'd like to grow some."

Josephine Hall, Charleston School, Newark, N. J.

### Good Reason

Did you hear the one about the moron who took cream and sugar to the movies because he heard there would be a serial?

Eugene Billings, Jr. H.S., Jamestown, N. D.

### Big Help

"Did your father help you with these problems, Willie?"

"No, ma'am."

"Are you sure?"

"Yes, ma'am. He didn't help—he did them all."

Brenton Maxfield, Jr. H.S., Great Bend, Pa.

### Sure Cure

*Patient:* "Doctor, what I need is something to stir me up—something to put me in fighting trim. Did you put something like that in my prescription?"

*Doctor:* "No, you'll find that in the bill."

Jack Gay, Rich Creek School, Jodie, W. Va.

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Chon Day in C Hier's

**"One thing about the power of gravity—you can depend on it."**

## Joke of the Week

This week's best joke was sent to us by Eleanore Schmitt, P. S. 24, Buffalo, N. Y.:

*Chief of Police:* "I can't understand how those bank robbers got away. Did you guard all the exits?"

*Policeman:* "Yes, but they must have gone out the entrance."

# WORDS OF THE WAR

**abdicate** (*ab*-di-kāt). Renounce, give up, or withdraw from; to relinquish the crown in favor either of a successor or of a republican regime.

**aerodonetics** (ā-er-ō-dō-*net*-iks). The science of motorless flight.

**airfoil** (*ār*-foil). Any aircraft surface, such as an aileron, rudder, or wing, which receives a useful reaction from the windstream through which it moves.

**airscrew** (*ār*-skrōō). A general term either for the pusher type of aircraft propeller, which is situated behind the main body of the plane; or for the more common tractor type, which is placed in front and "pulls" the craft through the air.

**auxiliary ships** Vessels which accompany the fighting fleet—including tankers, repair ships, transports, hospital ships, ammunition ships, submarine tenders, etc.

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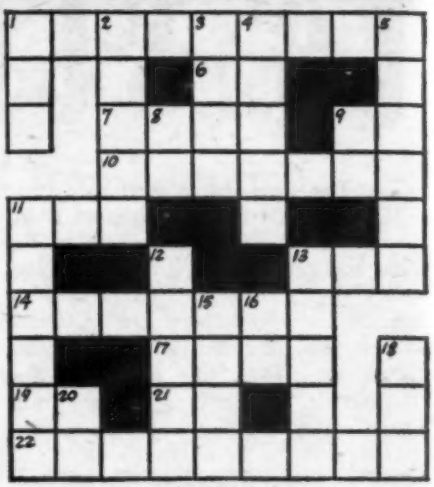
# NEWS X WORD



**ACROSS**

1. French battleship which recently sailed secretly from Dakar to N. Y.
6. Abbreviation for *bushel.*
7. River in England
9. Smallest state (abbrev.)
10. American soldiers trained as "Commandos."
11. To fasten one thing to another by a connecting cord.
13. River of SE Russia which runs to Sea of Azov.
14. River of W. Russia which runs to Black Sea.
17. Island reef outside Lagoon of Venice, Italy.
19. In a higher place.
21. Abbreviation for *lines.*
22. Seaport city of SE France.

**DOWN**

1. Past tense of *run.*
2. First name of Congresswoman from Connecticut.
3. Black.
4. To plunge forward.
5. Harmony; agreement.
8. SE State (abbrev.).
9. Railroad (abbrev.).
11. Irksomeness.
12. Hollow metal vessel that gives out a ringing sound when struck (pl.).
13. Amusing and strange.
15. A heap.
16. Editor (abbrev.).
18. Single in kind.
20. Middle Atlantic state (abbrev.).

(Solution next week)

### Last Week's Solution

ACROSS: 1-Casablanca; 7-pl.; 8-Guam; 10-P.S.; 11-none; 13-omit; 14-N.W.; 15-rear; 16-tr.; 17-anti; 18-Ossa; 19-us; 20-Alec; 23-C.D.; 25-Tuscaloosa.

DOWN: 1-Chennault; 2-Sp., 3-Algeria; 4-lea; 5-N.C.; 6-Australia; 9-Morocco; 10-pits; 12-owns; 21-lea; 22-is; 24-do.

### Tasty

*Tramp (who has just received a piece of pie for sawing some wood):* "Madam, do you mind if I saw the pie and eat some of that wood?"

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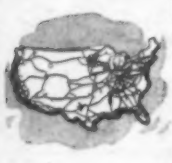
Wartime passengers cheerfully accept a little less comfort and convenience than Greyhound offers in peacetime—knowing well that greater travel luxury than ever will come with Victory.



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